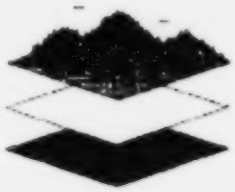

A Component of British Columbia's Land Use Strategy

Central Coast Land & Coastal Resource Management Plan (LCRMP) Phase 1 "*Framework Agreement*"

Socio-Economic and Environmental Assessment: Final Report

prepared by

Gary Holman, Consulting Economist
Eliot Terry (R.P. Bio.), Keystone Wildlife Research
Ministry of Competition, Science, and Enterprise

in association with

Provincial Members of the
Central Coast Inter-agency Planning Team

BRITISH COLUMBIA

July 2001

106-02221/

BRITISH COLUMBIA

TO: David Johns, Assistant Deputy Minister – Ministry of Sustainable Resource Management
FROM: Gord Enemark, Senior Analyst - Ministry of Competition, Science, and Enterprise
RE: Socio-Economic/Environmental Assessment of CCLCRMP *Framework Agreement*
DATE: July 20, 2001

Attached is the "Multiple Accounts" assessment of the key socio-economic and environmental implications of the proposed *Central Coast LCRMP Phase 1 Framework Agreement* (April 4, 2001).
The assessment was done by independent contractors Gary Holman (Consulting Economist) and Eliot Terry (R.P. Bio., Keystone Wildlife Research), along with myself, and with significant input from provincial government members of the Inter-agency Planning Team. In particular, the Ministry of Forests (Vancouver Forest Region) provided a vast amount of detailed information and analysis. GIS and resource analyses were also provided by the Ministry of Energy and Mines, BC Fisheries, and BC Environment. The objective of commissioning the report is to provide the government with an impartial assessment of the implications and trade-offs that are likely to occur with the implementation of the *Framework Agreement* in the Central Coast Plan Area. The evaluation methodology attempts to be consistent with the provincial government's *Social and Economic Impact Assessment for Land and Resource Management Planning in BC: Interim Guidelines, 1993.*

The study team found this assessment quite challenging due to the following factors:

- ⇒ For forestry, the significant "under-harvest" in many coastal areas of BC during several recent years and the marginal economics of the Plan Area from a timber harvesting standpoint, with or without the *Agreement*;
- ⇒ The *Agreement* is, of course, an uncompleted land/coastal use plan, with large areas temporarily deferred from timber harvesting (e.g., Option Areas) and even larger areas with minimally specified management direction (e.g., an undefined commitment to some form of "ecosystem based management;") and
- ⇒ The lack of direction regarding the allowable uses in proposed Protection Areas (PPAs), including recommendations about "grand-parenting" of existing tourism/aquaculture tenures.

It should be noted that the assessment focuses mainly on the implications of the PPAs and other "zones," and says little about the direction provided in that part of the draft *Central Coast Interim CLCRMP: Stakeholder Recommendations to Government* (March 15, 2001) that apparently has significant consensus (primarily Sections 4.1 and 4.2), for two reasons: (1) most of the concern in the short term is related to the impacts of PPAs, Option Areas, First Nations Lead Areas, and Special Management Zones and (2) almost without exception, the language recommends either future process/research or provides direction that simply is not specific enough to draw meaningful conclusions about.

Please contact either myself (250-387-4506 or E-Mail at gordon.enemark@gems8.gov.bc.ca) or the consultants (Gary Holman: 250-653-2042 or E-Mail at gholman@saltspring.com) and/or Eliot Terry: 250-964-3229 or E-Mail at keystone_pg@telus.net) directly if there are any questions about the assessment.

CCLCRMP *Framework Agreement* Socio-Economic Assessment: Summary Matrix

ACCOUNT	Base Case Trends (without *Agreement*)	Implications of *Framework Agreement*
ECONOMIC DEVELOPMENT		
Forestry	• Total current Allowable Annual Cut (AAC) of the Central Coast Plan Area is ~3.8million m³/yr - (35% TFLs & 65% TSAs) plus ~0.5 million m3/yr in average annual Timber License harvest. • 12% of Plan Area in Timber Harvesting Land Base (THLB), but economic viability marginal in some areas. • In 1996, forestry accounted for 21% of jobs & 26% of incomes in Plan Area. 4400 direct Person-Years (PYs) of employment linked to Plan Area harvest, 96% of which held by non-residents. • Jobs tied to the Plan Area AAC will likely decline over time due to "fall-down" & the FPC, (~400,000 m3/yr in first decade), industry consolidation, & trend towards certification/sensitive harvesting & other factors - over 300 direct forest jobs at risk, ~90% of which are outside of Plan Area & northern Vancouver Island. • Significant under-harvest of AAC in some management units in recent years, due primarily to poor markets & prices for hemlock-balsam, comprising large % of Plan Area timber volume. • Significant harvest & employment impacts are possible if environmental market campaigns in Europe & U.S. are successful.	• Ministry of Forests (MoF) modeling, indicates potential first decade harvest impact of 200,000 m3/yr from proposed Protection Areas (PPAs) & Special Management Zones (SMZs) to 354,000 m3/yr if all Option Areas (OAs) become PPAs. • After accounting for under-harvest in some management units, existing permanent jobs at risk in first decade estimated at 100 in harvesting & milling, & 115 indirect & induced jobs, 90% of which are outside Plan Area & northern VI. • Additional foregone employment opportunity of 60-185 direct future jobs if all OAs become PAs & under-harvested timber becomes economic. • Temporary dislocation of up to ~300 more forest workers possible as harvesting relocated, but timber in approved licensee plans appears sufficient to maintain short term harvest for several years, if economic. • In general, *Agreement* affects less accessible, lower value timber. Incremental impacts of *Agreement* on any single mill are minor. • Eco-system based management envisioned by *Agreement* is undefined, but could result in further timber harvest & employment impacts. • If final land use agreement reached, job impacts from environmental market campaign likely avoided. • Most First Nation Lead & some Option Areas could be developed with First Nations control or participation, resulting in lower harvest impacts than estimated above & higher Plan Area benefits from forestry.
Tourism & Recreation	• Plan Area offers high quality recreation opportunities such as sport fishing (50 lodges) boating/kayaking, back-country hiking, hunting. • In 1996, tourism (includes business travel) accounted for 16% of local jobs & 10% of income. Census data indicates growth, but recent sport-fishing declines. • ~40% of tourism jobs held by non-residents. • Sport fishing accounts for 1/3 of tourism jobs, but constrained by declines in salmon stocks. • 20% of THLB in VQOs, but 2/3 of MSBTC "Priority #1" visually sensitive areas in THLB not in VQOs, & would be compromised over time. • 43% of Plan Area in Undeveloped Watersheds, important for wilderness recreation. Will decline over time as roaded resource development continues. • Continued timber harvesting & road building will improve access for some types of tourism, but over time will compromise nature-based potential & operations. Some coastal values will also decline due to log dumps & if cap on salmon farms lifted. • Commercial tourism/business travel likely to continue gradual growth for foreseeable future, but highly dependent sport fishing activity.	• Creation of 76 new PPAs would protect many key fish, wildlife & recreation features in the Plan Area, & increase growth potential in nature-based sector. • If all Option Areas became PAs, this would further increase protection for undeveloped watersheds & nature-based potential. • Significant additional protection for some key scenic areas important to recreationists & some existing operators. • 9 existing commercial recreation tenures, 11 applications & 19 park use permits (Hakai / Fiordland) located in new PPAs. If not grand-parented would have to relocate & incur costs. • No existing tenures in Option or First Nation Lead Areas. Future applications could be affected, but could result in more joint ventures with First Nations.

ACCOUNT	Base Case Trends (without *Agreement*)	Implications of *Framework Agreement*
Commercial Fisheries	• In 1996, fishing/processing provided almost 14% of resident employment & 8% of income in the Plan Area. • Fishing/processing resident jobs have declined significantly since 1996 due primarily to salmon harvest declines & buyback. • Non-salmon species have become more significant as income sources.	• Some fish harvesting could be diverted from some marine portions of PPAs. • Better protection of sensitive watersheds, some marine portions of terrestrial PPAs & number of estuaries will benefit commercial fisheries. • Benefits for commercial fisheries depends on whether these activities allowed in PPAs & effectiveness of fisheries management.
Aquaculture	• There are over 50 salmon & 4 shellfish farms in the Plan Area, about 47% of provincial total. • Of 640 (mainly year round) direct jobs, 95% held by non-residents, mostly on north VI. • Freeze on number of tenures in BC at 121, with provision for 10 additional salt & fresh water pilot projects for closed containment research. • Output has grown strongly despite tenure freeze. • World markets for farmed salmon & shellfish expected to grow strongly. Substantial unutilized areas for industry expansion, if freeze removed. • Some First Nations & other interest groups oppose expansion of salmon farming due to concerns about environment & other issues.	• 11 salmon farm sites in / within 1 km of new PPAs (7 active, 2 fallow, 2 inactive) would face relocation & related costs if current provincial grand-parenting / siting policy not followed. • 1 salmon farm within OA. No existing shellfish tenures in or near PPAs or OAs. • 12 spawn-on-kelp permits within marine component of PPAs, but 11 held by First Nations which have to be maintained. • 22% of good finfish aquaculture potential & 9% of good shellfish potential would be precluded. • Additional 1.1% of good finfish & 2.4% of good shellfish potential in or near Option Areas.
Agriculture	• In 1996, agriculture contributed 2% of Plan Area employment & 1% of personal income. • Most agriculture in Bella Coola Valley. Number of farms & employment has been increasing. • Future growth low, constrained by soils, small local market, & distance from larger markets.	• *Framework Agreement* has negligible implications for agriculture. Similar trends as in Base Case.
Mining & Energy	• Currently no operating mines in the Plan Area, but proposed aggregate project near Bella Coola. • Two developed prospects, 25 past producers, ~11,000 ha. in mineral tenures, & ~2000 ha. in crown grants in the Plan Area, which MEM considers to be under-explored. • Some promising candidates for future metal & industrial mining activity, including re-activation of Surf Inlet past producer, but likelihood / timing of development uncertain. • No oil/gas activity in Plan Area, & potential is low. Electicity sources are diesel & small-scale hydro since Plan Area not on BC Hydro's grid. • Some long term potential for small scale geothermal energy & coal-bed methane. • Significant offshore oil/gas potential outside Plan Area, but moratorium on development. • 60% of past producers, 40% of prospects, 38% of showings & 20% of tenures within existing VQOs, which could increase development costs. • Land claims, low metal prices & existing regulatory regime are impediments investment.	• No developed prospects & 1 prospect precluded by new PPAs. Proposed Bella Coola aggregate quarry not affected by *Agreement*. • Six (24% of) past producers (incl. Surf Inlet & Western Copper), 6% of tenured area, 70% of Crown-grant area, & 20% of very high mineral potential precluded by new PPAs. • No developed prospects or prospects within Option Areas, but if all became PAs, up to 43% of very high mineral potential precluded by *Agreement*. • "Unfinished" nature of LCRMP will be significant deterrent to investment in the Plan Area, in addition to existing impediments (e.g., land claims, low gold prices) in Base Case. • Several PPAs could indirectly affect development potential by cutting off access. • Increase in proportion of occurrences, tenures & very high mineral potential affected by new SMZs, which could increase development costs. • Minor implications for geothermal potential; negligible for coal-bed methane & hydro potential
Botanical Forest Products	• Pine mushrooms provide some seasonal income that varies from year to year & also important to First Nations culture & health. • Market demand likely to continue growing for mushrooms & other botanicals. • Pine mushroom habitat at risk with continued clear cutting & lack of regulatory / policy framework.	• Better protection of old growth of fir / pine leading dry CWH for some botanicals, particularly pine mushrooms. • Conclusions subject to whether activities allowed in PPAs & effectiveness of Base Case management policy.
Hunting & Trapping	• Economic contributions minor, but subsistence & traditional values of these activities are significant, particularly to First Nations.	• Better protection of old growth for furbearers (e.g. marten) & of fir / pine leading dry CWH for botanicals. • Conclusions subject to whether activities allowed in

ACCOUNT	Base Case Trends (without *Agreement*)	Implications of *Framework Agreement*
	• 8 guide-outfitter territories in Plan Area & a significant amount of non-commercial hunting. • Populations of key game & furbearing species of grizzly & marten at risk from continued timber harvesting & related road building.	PPAs & effectiveness of Base Case management policy.
Community Concerns Account	• 50% of Plan Area residents live in the Bella Coola Valley, with another 25% in the Bella Bella area. • Main economic drivers are forestry, fishing, tourism, aquaculture, but most of the employment & other benefits from these resource sectors accrue to non-local residents. • Unemployment rates & other social measures (e.g., health, education, children at risk) indicate much lower quality of life than for the rest of BC. • Slow economic & population growth expected. Opportunities appear to be mainly in forestry, tourism, & aquaculture sectors. Reduced timber harvests expected in short & long term. • Treaty settlements & Delgamuukw precedent likely to result in greater local control over natural resource development & related benefits. • Communities on north & mid-VI (where the local economy is also currently poor) & the Lower Mainland partly rely on Plan Area resources. • Based on current worker residence & wood flows, almost 700 direct forestry & spin-off jobs at risk, with 2% (~13) in Plan Area, 3% (~20) in northern VI, 1% (~8) in North Coast, 17% (~120) in mid VI, & 77% (~530) in southern VI/Lower Mainland.	• 3% (~7 jobs) of direct forestry & spin-off impacts on existing jobs occur in Plan Area, 1% (~3 jobs) in North Coast, 4% (~8 jobs) in north VI, 12% (~25 jobs) in mid-VI, & 79% (~170 jobs) in south VI & Lower Mainland. • *Agreement* could cause severe hardship for displaced forestry workers, especially outside Lower Mainland, but worker compensation package should mitigate most of these impacts. • Even if all OAs became PAs, under-harvest ignored, & no worker compensation, the forestry-related job impacts of the *Agreement* would comprise 0.5% of total employment in the Plan Area, 0.3% in north VI & 0.3% in mid-VI. • If all of First Nations Lead Areas & half of OAs became operating areas under First Nations / local control, additional jobs (about 20) would exceed impacts of *Agreement* in Plan Area. • Establishment of economic development trust would also help retain resource developments benefits in, & diversify Plan Area economy. • *Agreement* better protects nature-based tourism & other commercial and subsistence activities such as fishing, hunting, trapping, & botanicals.
First Nations Concerns Account	• First Nations comprise >50% of Plan Area resident population. Other groups on northern VI also claim territories in Plan Area. • In 1996, 30% of Plan Area on-reserve labour force worked in fishing & forestry. This has since declined due to problems in these sectors. • Key concerns are sustainability of fish/wildlife, extremelyhigh unemployment rates, lack of training/capacity, lack of control over and low benefits from land & resources. • Future treaty settlements will likely include financial compensation, encourage joint ventures & increase economic stability in the Plan Area. • Without *Agreement*, environmental market campaign could reduce First Nations forestry employment.	• Potential loss of existing & future forestry jobs & of some mineral & aquaculture job potential, but historical lack of local benefits for First Nations. • Potential long term increase in tourism jobs & livelihoods derived from nature-based activities such as fishing, trapping & botanicals. • First Nations economic interest in Option / First Nation Lead Areas could increase possibilities for joint ventures in several sectors. • Some First Nations concerned about constraints (e.g., PPAs) on new & proposed forestry operations.
Government Revenue Account	• Plan Area timber harvest generates about $155 million/yr in gross provincial stumpage, personal, & corporate income tax revenues. • Base Case harvest impacts from "fall-down" as per MoF *Timber Supply Review* would result in revenue loss of $7.3-$10.8 million/yr. • Environmental market campaign could significantly reduce forestry-related revenues from Plan Area.	• *Agreement* could reduce existing stumpage & corporate income tax revenues by $2.3-3.4 million/yr for the first decade. • Additional foregone government revenues of up to $4.2-$6.1 million/yr if all Option Areas become PAs and currently marginal timber becomes viable. • *Agreement* would result likely trigger compensation claims for timber impacts (> 5% threshold for forestry tenures) & for precluded mineral claims. • Assessment of forestry revenue impacts must consider implications of environmental market campaign.
Economic Efficiency Account	• Total lump sum "net resource value" of Plan Area timber harvest estimated at $230-$1,537 million "Net Present Value" (NPV), depending on assumptions re net value of timber.	• Total lump sum timber resource rents lost as result of *Agreement* estimated at $7-$47 million (NPV), depending on net value assumptions. • NPV loss equivalent to about $0.27-$1.85/yr per

ACCOUNT	Base Case Trends (without *Agreement*)	Implications of *Framework Agreement*
	• Lump sum net resource value of Base Case timber harvest impact estimated at $21.5-$144 million (NPV) depending on net value assumptions.	household. From an economic efficiency perspective, each household would have to be willing to pay this amount to achieve the environmental & other benefits of the *Framework Agreement*.
Biodiversity: • Ecosystem Representation • Integrated Environmental Values • Old Growth • Red and Blue-Listed Species • Rare Ecosystems	• 10.8% of Plan Area in existing Protected Areas (PA's). However, significant gaps in ecosystem representation remain, particularly in the South where no large (>3000 ha) PAs exist. Of the five major ecosections in the Plan Area, only one is adequately represented (Kitimat, 18.5% provincially). Remaining 4 ecosections have less than 4% in PAs. Northern Pacific Ranges (NPR) most under-represented (2.2%). Many biogeoclimatic subzones lack representation in PAs including some that only occur in the Plan rea (e.g., CWHvm3, CWHws2, CWHmm1). • Less than 1% of very high and high integrated environmental values in existing PA's. • Over one quarter (26%) of the land area estimated to support a very high probability of rare ecosystems occurs in existing PA's. • < 5% of high and moderate ranked biodiversity areas in PA's. • Although old growth forests may be maintained in areas outside the THLB, almost all of the old growth that occurs on the THLB is expected to decline in abundance over the next 50 years resulting in more early and mid seral stage forests. Species dependent on early seral forests are expected to benefit whereas species dependent on mature and old forests are expected to occur at lower densities and experience local declines. • Overall, natural levels of biodiversity expected to decline over the long term as undeveloped watersheds become roaded, the amount of mature and old coniferous forest declines and human disturbance increases. Implementation of policy direction set out in *Landscape Unit Planning Guide* (LUPG) may also further increase risks to biodiversity. ➢ **OVERALL RISK: High**	• *Agreement* doubles the amount of land allocated to proposed Protection Areas (PPA's) from 10.8% to 21% (an additional 76 PPA's that total 580,000 ha). The PPA's increase ecosystem representation in all ecosections including the NPR, OUF, HEL and QCT, which were under-represented in the Base Case. Within these ecosections, the PPAs also capture biogeoclimatic subzone/variants, which were totally lacking representation in the Base Case (regionally and provincially) including the ESSFmwh, CWHvm2, CWHvm3, CWHdm and CWHms2. Similar to the Base Case, the CWHmm1 remains with no representation in PA's; however, about 33% of this subzone occurs in areas outside the current THLB. • An additional 18.5% and 11% of very high and high integrated environmental values in PPAs. Majority of integrated values (>62% occur in the EBM Operating Areas. • *Agreement* improves representation of rare ecosystems by proposing an additional 18%, 13% and 16% of very high, high, and moderate probability rare ecosystems in PPAs respectively. The majority of rare ecosystems remain in the EBM Operating Areas. • 12% and 15% of high and moderately ranked biodiversity areas allocated to PPAs respectively. Remaining area (~80%) in Ecosystem-Based Management (EBM) Operating Areas. Therefore, the overall risks to biodiversity will largely depend on the management objectives and strategies that are developed as part of the EBM regimes. • *Agreement* doubles the amount of old growth in PAs from 13% (Base Case) to 26% which suggests reduced risks to old growth forests and related species (e.g., furbearers). ➢ **OVERALL RISK: Partly Reduced**
WILDLIFE/FISH		
Marbled Murrelet	• ~3 % of marbled murrelet habitat in PA's/RA's & 71% allocated to General Management (71%). • Upper slope nesting habitat (MH subzones) at less risk due to inoperability. However, valley bottom (CWH) nesting habitat at high risk from forest harvesting due to inadequate habitat protection measures (i.e. *OGMAs* and *Wildlife Habitat Areas* in *Identified Wildlife Strategy*). Applying *LUPG* limits the options to fully address habitat requirements. ➢ **OVERALL RISK: Moderate-High**	• *Agreement* proposes an additional 13.4% (49, 934 ha) of Marbled Murrelet nesting habitat in Candidate Protection Areas which suggests lower risks to marbled murrelet habitat compared to the Base Case. The implications of managing the remaining habitat, however, will depend on final VQO and ecosystem based management (EBM) strategies. ➢ **OVERALL RISK: Partly Reduced**

ACCOUNT	Base Case Trends (without *Agreement*)	Implications of *Framework Agreement*
Mountain Goat	• 3% of mountain goat winter range occurs in PA's/RA's, which pose relatively low risks • However, 90% of winter range occurs in General Management, which suggests goats are at risk from indirect effects of increased road access. • Although current management practices (e.g., EA mine review process, establishment of WHAs in kidding areas) will help reduce risks to mountain goats, a comprehensive landscape level approach that addressed access management is required to reduce risks to mountain goats. ➢ **OVERALL RISK: Moderate-High**	• *Agreement* reduces the risks to mountain goats vs. the Base Case by allocating an additional 13% (88,569 ha) of mountain goat habitat to PPA's. ➢ **OVERALL RISK: Partly Reduced**
Grizzly Bear **(Blue-listed Identified Wildlife)**	• About 25% of high conservation priority grizzly bear habitat occurs in existing PA's (i.e., Tweedsmuir Park) and another ~ 5.3% in the Fiordland Recreation Area. • Some degree of landscape level protection provided in Mid-Coast Forest District (i.e., old forest seral targets in specific landscape units) partly reduces risks to grizzly bear habitat in the North Plan Area. Overall, current management practices suggest that although some stand-level management will likely occur (e.g., WHAs, buffering of avalanche chutes), lack of management direction from a *Higher Level Plan* poses increased risks to grizzly bears over the long term. Implementing landscape level requirements (e.g., seral stage distribution and access management) are needed to reduce risks associated with increased resource development activities. ➢ **OVERALL RISK: Moderate-High**	• Reduced risks to grizzly bears due to an additional 16% (221,142 ha) of high conservation priority grizzly bear habitat allocated to PPAs. Included in % is the Fiordland Recreation Area, which is upgraded to "protection" status and represents 74,765 ha of high conservation priority grizzly bear habitat. Together with the amount of habitat that occurs in existing PA's (25%), a total of 41% of high priority grizzly bear habitat would be in PA's. • The majority of remaining grizzly bear habitat outside of PPAs (54-75%) will be managed as part of the EBM Operating Areas. The implications of ecosystem-based management as well as how many grizzly bear identified watersheds will be managed according to the IWMS landscape and stand level management strategies remain unclear at this time. ➢ **OVERALL RISK: Partly Reduced**
Black Bear / Kermode	• About 8% of high suitability black bear habitat occurs in land use designations considered to pose relatively low risks to black bears (i.e. PA's/RA's). 77% black bear habitat, however, is in General Management. • Outlook for the Kermode bear, in particular, uncertain because its viability partly dependent on if Spirit Bear Study Area became a PA & how well forest practices would integrate the needs of bears on Princess Royal Island. • Overall, black/Kermode bears remain vulnerable to resource development activities due to the lack of management practices required to ensure critical foraging, security and denning habitats. ➢ **OVERALL RISK: Moderate-High**	• Reduced risks to black bears including the kermode due to increased amount of black bear habitat allocated to PA's (19.7%). • This percentage includes the Spirit Bear PPA (~91,145 ha) which provides enhanced protection for the Kermode bears that inhabit Princess Royal Island. ➢ **OVERALL RISK: Partly Reduced**
Black-tailed Deer	• 5% of deer winter range occurs in PA's/RA's, which pose relatively low risks to deer with 77% of habitat in General Management. • Mid Coast Forest District partly reduces risks to deer winter ranges by implementing a forest cover constraint (25% of deer winter range must be older than 250 years) which should provide adequate habitat over a rotation. In contrast, the South Plan Area does not have any forest cover requirements to maintain deer winter ranges, so deer winter range is at relatively higher risk in this portion of the overall Plan Area. ➢ **OVERALL RISK: Low-Moderate**	• *Agreement* allocates an additional 15% (48,632 ha) of high suitability black-tailed deer habitat to PPA's which reduces the risk to deer vs. the Base Case. The Option Areas overlay an additional 18% of deer habitat. • Similar to other species, because the majority of remaining habitat overlaps with the EBM Operating Areas (~41%), it is unclear to what extent these areas will meet the needs of deer over the short and long term. ➢ **OVERALL RISK: Partly Reduced**

ACCOUNT	Base Case Trends (without *Agreement*)	Implications of *Framework Agreement*
Fisheries Sensitive Watersheds (DFO)	• <1% of heavily disturbed watersheds (Type A), 5.9% of unlogged sensitive watersheds (Type B), 8.5% of partly intact watersheds (Type A/B) and only 1.4% of unlogged 'reference watersheds (Type B/ND) occur in existing PAs. • Sensitive fisheries watersheds will require higher than minimum standards outlined by FPC. • Sockeye, Coho and eulachon stocks declining. ➢ **OVERALL RISK: High**	• Reduced risks to fisheries values, especially for partly intact watersheds (Type A/B) as well as unlogged reference watersheds (Type B/ND) by allocating >40% of these watershed types to PPAs (>40%). • However, 76% of fisheries sensitive watersheds (Type A and B) remain in EBM Operating Areas. The extent to which fisheries values are maintained in these areas will largely depend on the strategies developed to meet the *Agreement's* ecological principles of conserving hydro-riparian areas and protecting unstable areas. ➢ **OVERALL RISK: Partly Reduced**

Part I:
Socio-Economic Assessment of Central Coast LCRMP Phase 1 *Framework Agreement*

Prepared by

Gary Holman (M.A., Econ.)
Consulting Economist
Saltspring Island, B.C.

and

Gord Enemark (M.A., Econ.)
Ministry of Competition, Science, and Enterprise
Victoria, B.C.

July 2001

TABLE OF CONTENTS: Part I

1. INTRODUCTION AND *FRAMEWORK AGREEMENT* SUMMARY 2

2. FORESTRY 4

2.1 BASE CASE 4
2.2 IMPLICATIONS OF THE *FRAMEWORK AGREEMENT* 8

3. TOURISM AND RECREATION 18

3.1 BASE CASE 18
3.2 IMPLICATIONS OF THE *FRAMEWORK AGREEMENT* 21

4. COMMERCIAL FISHERIES 27

4.1 BASE CASE 27
4.2 IMPLICATIONS OF THE *FRAMEWORK AGREEMENT* 27

5. AQUACULTURE 29

5.1 BASE CASE 29
5.2 IMPLICATIONS OF THE *FRAMEWORK AGREEMENT* 30

6. MINING AND ENERGY 35

6.1 BASE CASE 35
6.2 IMPLICATIONS OF THE *FRAMEWORK AGREEMENT* 37

7. AGRICULTURE 40

7.1 BASE CASE 40
7.2 IMPLICATIONS OF THE *FRAMEWORK AGREEMENT* 40

8. BOTANICAL FOREST PRODUCTS AND TRAPPING 41

8.1 BASE CASE 41
8.2 IMPLICATIONS OF THE *FRAMEWORK AGREEMENT* 42

9. COMMUNITY / FIRST NATIONS CONCERNS 43

9.1 BASE CASE 43
9.2 IMPLICATIONS OF THE *FRAMEWORK AGREEMENT* 44

APPENDIX A: Terms of Reference
APPENDIX B: GIS Area Analysis - Framework Agreement and Base Case
APPENDIX C: Analysis of Timber Under-harvest and Category "A" Cutting Permit Blocks
APPENDIX D: Illustrative Examples of Potential Economic Impacts from Market Campaign
APPENDIX E: Forest and Mineral Sector Mitigation/Compensation Issues
APPENDIX F: Potential Timber Supply Impact of CCLCRMP Phase 1

1. INTRODUCTION AND *FRAMEWORK AGREEMENT* SUMMARY

In July 1996, the Central Coast Land and Coastal Resource Management Planning (LCRMP) process was announced. The LCRMP is a multi-stakeholder, public and government agency consensus-based process to plan for Crown land and coastal resources, including the establishment of new terrestrial and marine Protected Areas. The LCRMP Plan Area encompasses a large region of the BC Coast, of about 4.8 million hectares (ha.). It is approximately 50% larger than Vancouver Island and includes portions of the Kitimat-Stikine, Central Coast, Cariboo, and mainland portions of the Mount Waddington and Comox-Strathcona Regional Districts. First Nations comprise more than half of the Plan Area population, and many actively participated in the LCRMP. This evaluation addresses First Nations concerns based on available information.

On April 4, 2001, the BC Government endorsed Phase I of the Central Coast LCRMP, termed a "*Framework Agreement*." The *Agreement* included a negotiated map (Map 1) delineating new proposed Protection Areas (PPAs), Option Areas, First Nation Lead Areas and Special Management Zones, as follows:

Proposed Protection Areas (PPAs): These zones would, with First Nation approval, receive an *Environment and Land Use Act* (ELUA) designation prohibiting certain types of resource extraction, particularly timber harvesting, mineral and energy / hydro-electric development. The ELUA designation may remain for some areas to allow for greater flexibility in management objectives and permitted activities.

Option Areas: These areas are deferred from any resource extraction for the next 12 to 24 months while the LCRMP table further negotiates their status. The final status of Option Areas when the LCRMP is complete is uncertain. Some may go into protection status and some may be subject to ecosystem-based management.

First Nation Lead Areas: In these areas, forest licensees and environmental non-government organizations have agreed that final recommendations for these areas should be made by First Nations. Implications for timber harvesting in these areas is uncertain, although it is less likely that these areas will become PAs.

Special Management Zones (SMZ 1 and SMZ 2): These zones will be managed primarily for visual quality. It is assumed for purposes of evaluation, that a Visual Quality Objective (VQO) of *Retention* will apply in SMZ1, and a VQO of *Partial Retention* in SMZ2.[1]

Eco-System Based Management (EBM): This is defined in the *Framework Agreement* as "the management of human activities so that ecosystems, their structure, function, composition, and the physical, chemical and biological processes that shaped them, continue at appropriate temporal and spatial scales." The implications of this management approach are very uncertain for land and resource management at this time, particularly since socio-economic goals are to be incorporated in Phase 2 of the LCRMP process, and are not evaluated in this assessment.

Given the uncertainty regarding the ultimate designations that will result from the LCRMP process, particularly regarding Option Areas, the assessment identifies a range of potential impacts. The economic impacts of strategic-level crown land use plans are always difficult to quantify because activity in affected sectors is dependent on many other factors as well, such as international commodity markets and prices, industry cost factors, technological change, and government policies.

---

[1] *Partial Retention* is defined as no more than 5% of visual disturbance at any point in time. *Retention* is defined as no more than 1% visual disturbance.

This assessment conforms as closely as possible with the principles outlined in the provincial government's *Social and Economic Impact Assessment for LRMPs in BC: Interim Guidelines* (1993). The assessment uses the *Central Coast LCRMP Socio-Economic and Environmental / Marine Base Case* (December, 2000) as the benchmark against which to compare the *Framework Agreement*. The Base Case land use regime, which occurs in the absence of the LCRMP, includes the implications of the *Timber Supply Review* (TSR) management regime, the *Forest Practices Code* (FPC), and other current management initiatives of government (e.g., the *Mining Rights Amendment Act*, the *Mineral Exploration Code*, the recent *Salmon Aquaculture Policy* , DFO's stock management regulations, etc.). First Nations' land claims are also part of overall Base Case trends, although claims in the Plan Area have not yet been resolved.

About 10.8% of the Plan Area is currently in a fully or partially protected status, with Tweedsmuir Park and the Hakai and Fiordland Recreation Areas comprising most of that amount. An additional 65 Cabinet-approved terrestrial "Study Areas" (some with a marine component) covering 6.7% of the Plan Area were government's candidates for protection. It should be noted that a 12% target for new Protected Areas does not apply specifically to the Central Coast LCRMP Plan Area or to other LRMPs, but rather refers to the target for the province as a whole, as set by the provincial government in the early 1990s.

It could be argued that new protected areas would have been established in the Base Case, but it is assumed in this assessment that all impacts due to proposed and possible PAs are attributable to the LCRMP. There also is a trend to more sensitive harvesting methods in the Base Case, but this is not modeled except for Weyerhaeuser's Forestry Project in TFL 39. A summary of land use designations in the Base Case and under the *Framework Agreement* is provided in Table 1.

A key difference between the *Framework Agreement* and the Base Case is that the overall proportion of the Plan Area in proposed PAs is significantly higher (21%) than in the Base Case (10.8%), and would be significantly higher if Option Areas were given PA status. The proportion of the land base under some kind of visual quality management also increases, assuming that all existing (Base Case) Visual Quality Objectives (VQOs) as well as new Special Management Zones (SMZs) for visual quality are adopted. Another key difference is that "General Management" is to be replaced by "Eco-System Based Management," although the specific nature of that change is not yet defined. See Appendix B for a much more detailed compilation of area statistics for the Base Case and *Framework Agreement*.

Table 1:
Summary of Land Use Designations for the Central Coast Plan Area as % of the Gross Land Base (GLB)

	General Mgt. (FPC)	EBM Operating Areas[b]	VQOs	First Nations Lead Areas	Option / Deferred Areas	Recreation Areas	PPAs
Base Case	77.6[a]	0	10.0	0	1.4	2.7	8.1
Framework Agreement	0	52.5	14.1[c]	1.4	11.3	0	20.6

Source: Ministry of Environment, Lands and Parks, Nanaimo.

(a) Includes "Special Management" for values such as Grizzly, Deer, and Community Watersheds.

(b) No detail on management direction is provided for EBM, just the recommendation that it should occur.

(c) Assumes that all Base Case VQOs would also apply in the *Framework Agreement*. The % of the land base in VQOs in the *Framework Agreement* is overstated because VQOs only apply to a portion of SMZ1 and SMZ2.

2. FORESTRY

2.1 Base Case

Forestry is the largest private sector employer in the Plan Area. Based on 1996 Census data, the Ministry of Finance and Corporate Relations (MFCR) estimates that forestry accounted for 26% of the personal income of residents of the Mid-Coast Forest District, where over 90% of the Plan Area population resides. The Plan Area covers a Gross Land Base (GLB) of 4.8 million hectares, including the Mid-Coast TSA, the mainland portions of the Kingcome and Strathcona TSAs, about 8% of the North Coast TSA, and portions of several TFLs. About 10.8% of Plan Area is in existing fully/partly Protected Areas (including the Hakai and Fiordland Recreation Areas, which allow mining but not logging, and parts of Tweedsmuir Park). About 551,000 ha. (11.9% of the Plan Area) is designated by the Ministry of Forests (MoF) as "Timber Harvesting Land Base" (THLB), or the area that is available and deemed economically feasible for timber harvesting in the short and long term. The THLB is much smaller than the GLB area because much of the Plan Area is non-forested/inoperable (i.e., mainly rock, ice, alpine, steep terrain, problem forest types, etc.), has "net-downs" for environmental values (e.g., existing Parks, riparian reserves, etc.), and since some land is non-Crown. However, as economics/technology improves, the THLB could expand into currently inoperable areas. On the other hand, some parts of the THLB are only marginally, or not economic at this time given current harvesting costs and market prices. This is an important issue, especially in the Mid-Coast Timber Supply Areas, where MoF estimates that about 66% of the THLB is hemlock/balsam leading stands (see Map 2), the markets/prices for which have been depressed since the late 1990s (see Figure 1).

MoF forest cover constraints, such as cutblock adjacency, Forest Practices Code and landscape level biodiversity, apply to all TSAs and TFLs within the Plan Area. There are additional requirements that may be applied to protect specific areas, values or forest types, such as scenic areas / visual quality objectives, community watersheds, deer winter range, and grizzly bear habitat. Appendix B provides a GIS area analysis breakdown of the Plan Area by these zone categories, although the Grizzly, Deer, and Community Watershed zones are subsumed under "General Management."

The total current Annual Allowable Cut (AAC) of the Central Coast Plan Area is about 3.8 million m3/yr., excluding an average annual harvest on "Timber Licenses"[2] of about 460,000 m3/yr. over the 1995-2000 period.[3] Forest licenses within TSAs account for about 65% of the AAC, and TFLs make up the remaining 35%. Within the Mid Coast Forest District, the major tenures are held by Doman/Western (includes part of TFL #25), Weyerhaeuser (includes part of TFL #39), and International Forest Products (Interfor). Interfor (includes TFL #45), Weyerhaeuser (including part of TFL #39), Timberwest (including part of TFL #47) and Shushartie Logs Sales Ltd. (and its parent company Mill & Timber Products Ltd.), are the larger licensees on the mainland portion of the Port McNeill Forest District, while Timberwest (including part of TFL #47), Doman (including part of TFL #25), Weyerhaeuser (including part of TFL #39), and Interfor tenures are located in the mainland portion of the Campbell River Forest District. Part of Triumph Timber's (formerly West Fraser Ltd.) tenure is also located in the northern part of the Plan Area that extends into the North Coast TSA.

---

[2] Timber Licenses are one of the original forms of tenure which essentially grant to companies one time harvesting rights to the timber, but after harvesting, the land reverts to the Crown.

[3] The 1995-2000 period is chosen to create averages for several variables in the forestry analysis (e.g., also for the "under-harvest" estimates) since it more accurately reflects a complete business cycle than would the use of a single year or even the last two or three years.

Figure 1: Recent B.C. Coast Average Log Market Prices ($ per cubic metre)

	April, 1991	April, 1992	April, 1993	April, 1994	April, 1995	April, 1996	April, 1997	April, 1998	April, 1999	April, 2000
HemBal	$46.40	$50.40	$50.86	$73.90	$103.00	$95.00	$73.18	$71.59	$64.79	$62.60
Cedar	$58.10	$61.10	$96.33	$88.30	$84.16	$89.65	$115.08	$139.48	$116.64	$126.57
Cypress	$92.00	$99.10	$190.90	$215.60	$183.60	$142.23	$158.45	$138.13	$110.30	$208.30
Fir	$72.80	$66.30	$94.60	$128.10	$164.57	$136.44	$177.39	$120.07	$114.40	$106.80
Spruce	$112.20	$93.80	$135.20	$139.00	$206.73	$271.45	$247.67	$149.49	$98.00	$128.70
Pine	$29.60	$34.60	$41.10	$51.60	$67.77	$64.84	$43.68	$59.97	$44.20	$29.10

Source: Ministry of Forests, Vancouver Forest Region.

Over 95% of the AAC is harvested by licensees (generally from logging camps) who do not have processing facilities in the Plan Area. Most of this timber is transported to processing facilities on Vancouver Island and the Lower Mainland. For example, the solid wood processing facilities of the four largest tenure holders in the Plan Area (collectively accounting for 92% of the harvest) rely on the Central Coast for about 52% (Interfor), 44% (Doman/Western), 21% (Timberwest), and 8% (Weyerhaeuser) of their respective, overall annual harvests. Doman/Western's Central Coast logging operations also supply a portion of its pulp mill requirements in Port Alice and, indirectly via residual chips, its Howe Sound pulp mill. Weyerhaeuser utilizes fibre from its Central Coast operations to supply pulp & paper mills owned by other companies in Pt. Alberni, Powell River, and Nanaimo. Interfor and Timberwest do not own pulp mills, but both supply Central Coast-generated chips and/or logs to the Vancouver Island/Coastal pulp industry, including the Fletcher Challenge Elk Falls pulp/paper mill in Campbell River.

Of the roughly 4400 Person-Years (PYs) of direct forestry harvesting/processing employment that are, to varying degrees, linked to the Central Coast harvest, it is estimated that only about 5% of the workers reside in the Plan Area, although some licensees are hiring more local First Nations personnel.[4] Excluding pulp & paper, a further 33% reside on northern and mid Vancouver Island (from the Campbell River area northward), reflecting the strong economic linkage of this area with the Central Coast harvest. The majority of the remaining employees reside on southern Vancouver Island and the Lower Mainland. These estimates do not include indirect jobs (i.e., jobs resulting from industry purchases of goods and services) or induced jobs (i.e., jobs resulting from the worker spending of direct and indirect employment income).

The only locally based manufacturer of forest products is the Little Valley Forest Products sawmill in Hagensborg, which employs about 30 people on a seasonal basis. The operation focuses on value-added processing (cedar lattice panels and stock for cedar plank paneling). The company is expanding its operation to produce other specialty or value-added products.

Recently, there have been significant stresses on the BC coastal forestry industry, resulting in mill closures and temporary/permanent lay-offs. There are a combination of causal factors at work that are mainly external to land use planning, including lower AACs as determined by the Province's Chief Forester, cyclical prices for products due to volatile world markets, the Canada-US softwood lumber quota, higher harvesting costs due to the Forest Practices Code and the necessity to harvest in higher-cost (e.g., upper elevation) areas, lack of product and market diversification, and the stumpage increases of the early 1990s. The Ministry of Forests estimates that an AAC reduction of about 280,000 m3/yr. in the Plan Area will occur in the next decade (see Appendix F, p. 18), even in the absence of the *Framework Agreement*.[5] The Chief Forester has also recently partitioned 200,000 m3/yr of the Mid-Coast AAC which will require harvest performance in hemlock-balsam stands. Continuing AAC reductions are expected in the Plan Area, as well as throughout most of the remainder of the Vancouver Forest Region, for a number of reasons:

- the Timber Supply Reviews (TSRs) generally indicate that current AACs for most management units are above long term (sustainable) harvest levels and are subject to a significant "fall-down;"
- the recently implemented Forest Practices Code (FPC), which constrains harvesting to some extent (e.g., due to riparian zones, wildlife tree patches, etc.) to better protect environmental values;

---

[4] Employment data was collected by the Ministry of Employment & Investment in 1998-99 by undertaking a direct survey of the Licensees. Since sawmills located outside the Plan Area have many fibre sources, employment in those mills was pro-rated by the percentage of fibre received from the Central Coast. Pulp & paper employment was not collected due to fibre flow complexities, but estimated on the basis of 0.28 Person-Years of employment per 1000 m3/yr., i.e., as 7097 PYs (less 410 due to Bowater closing) divided by Vancouver Forest Region 1995 harvest of 24.3 million m3/yr reported in Pierce Lefebvre Consulting, *Analysis of Woodflows in the Vancouver Forest Region*, 1996.

[5] These estimates are not intended to prejudice the statutory authority of the Province's Chief Forester, who has the responsibility for determining AACs on crown lands.

- implementation of the Vancouver Island Land Use Plan (VILUP) will affect the AACs in management units within the Port McNeill and Campbell River Forest Districts;
- the movement of some coastal forest companies (e.g., Weyerhaeuser) to more environmentally sensitive harvesting approaches, due in part to pressure from environmental groups and major buyers; and
- First Nations issues/treaties, which could eventually result in harvest reductions[6] and/or redistributions.

Employment in the forestry sector can also be influenced upwards by factors other than AAC levels. For example, the requirements of the FPC, Visual Quality Objectives (VQOs) and recently emerging environmental certification processes (see below), can result in more labour intensive, selection harvesting methods. Commercial thinning and other intensive silviculture investments, funded in part by Forest Renewal BC, has also created jobs. Growth in the value-added / specialty wood sector will likely continue. In the long term, trends in wood product prices, technology, operability (e.g., heli-logging) and timber utilization can also affect the AAC. There is also some indication that timber growth rates, and therefore medium to longer term sustainable harvest levels, may be higher than currently assumed.[7]

The eventual settlement of treaties could result in a re-allocation of parts of the Plan Area THLB or harvest rights to First Nations. These timber supply sources may still be available to processing facilities within the Plan Area and other regions (e.g. as provided for in the Nisga'a Treaty). However, it is possible that reduced harvesting activity and/or preferential hiring on Treaty lands or forest license areas could reduce the availability of harvesting jobs to non-aboriginal workers.

Some licensees operating in the Plan Area and elsewhere on the BC Coast are seeking environmental certification for their forest products by third-party organizations such as the Canadian Standards Association, the International Standards Association, and the Forest Stewardship Council. It is likely that certification would aid in the marketing of BC forest products abroad, given increasing environmental concerns in other countries with respect to BC forestry practices. It is not yet clear whether certification would affect timber harvest or employment levels in the short or long term. However, it is clear that without a land use agreement for the Central Coast, market campaigns by BC environmental groups would continue to pose real threats to the BC coastal forest industry. It is assumed for *illustrative purposes only* in this analysis that 25% of coastal pulp sales to the three countries in the EU deemed to be most sensitive to such campaigns might be lost if conflict continued. This reduction is in the same order of magnitude as the annual capacity of any one of the three smallest coastal BC pulp mills. In addition, if 25% of coastal BC's lumber markets in the US were lost, this would be approximately equivalent to the production of two coastal sawmills. See Appendix D for the detailed assumptions and methodology.

Lastly, it is important to note that average harvest levels over the past five years in some of the management units which are entirely or partly within the Plan Area, have fallen short of the current AAC due to a number of factors such as markets/prices, costs, and deferrals due to pressures from environmental/First Nations organizations. In fact, this has been a coast-wide phenomenon. MoF's *Economics & Trade Branch* recently estimated that throughout the entire Vancouver Forest Region, based on 1995-99 harvest data, the actual harvest fell short of the AAC by an average of 3.5 million m3/yr. *Since existing employment levels are predicated on existing harvest levels, the "under-harvest" situation is important to take into account in evaluating the potential economic implications of harvest reductions in both the Base Case and resulting from the Framework Agreement.*

---

[6] Treaties will not necessarily result in harvest reductions, although a number of First Nations in the Plan Area have expressed concerns about the rate and environmental impacts of current harvest levels. However, if smaller management units are created, and there is a history of logging in these areas, then harvest levels may have to decline, since the number and size of alternative harvest sites within the management unit would be reduced

[7] For a discussion of some of these factors, see *The Truth is Out There*, L. Pedersen address to Northern Forest Products Association, April, 1997.

2.2 Implications of the *Framework Agreement*

Timber Supply Impacts

Due to the difficulties that the coastal forest industry and its employees have been facing in recent years and the fact that there is significant downward pressure on AACs in the Base Case, the focus of this assessment is on short term (i.e, first decade) impacts. This assessment also concentrates on permanent job loss rather than temporary dislocation that may arise during the period (e.g., 12-24 months) that alternative timber harvest areas within, and possibly outside of, the Plan Area are being identified. It should be noted that the government strategy for compensation / mitigation, announced as part of the *Framework Agreement*, is being addressed in a separate process.[8]

Appendix F contains the timber supply analysis undertaken by MoF,[9] which indicates that the *Framework Agreement* would result in a 7.8% to 15.4% reduction in the Plan Area Timber Harvesting Land Base (THLB). For a general indication of the location of these areas, see Map 2. The lower end of this range represents the impacts of proposed Protection Areas (PPAs) only. The upper end assumes that all of the Option Areas become PAs, which is unlikely. Therefore, the actual THLB and volume impact probably falls within the range. Because the PPAs and Option Areas are comprised of old and mature timber in areas that have not been historically harvested, the percentage THLB volume impact of the *Agreement* are somewhat higher than the THLB area impacts. For purposes of this assessment, it is assumed that First Nations Lead Areas (which comprise 2% of the Plan Area THLB), do not become PAs. It is considered more likely that these areas would continue as operating areas but with First Nations management and involvement. As noted above, all VQOs in SMZ1 are modeled as retention and all VQOs in SMZ2 as partial retention.

The *Framework Agreement* will also preclude harvesting in some Timber Licenses (TLs) within the Plan Area. Short and long term TL impacts are included in the MoF timber supply analysis results for TFLs, but not for TSAs, and therefore, separate impact estimates had to be developed using data provided by MoF. While it is relatively straightforward to estimate the impacts of alienating the stock of timber in TLs, it is more difficult to estimate the impacts on the annual flow of timber from such licenses because they have no AAC or cut control constraints. For purposes of this assessment, impacts on TLs are based on the proportion of mature timber volumes within TLs potentially alienated by the *Framework Agreement*, multiplied by average harvest levels of about 460,000 m3/yr.over the 1995-2000 period.[10]

The impact estimates do not include the implications of proposed Eco-System Based Management (EBM) principles to be applied to all parts of the THLB outside protected areas. The EBM principles, which are to include both ecological and socio-economic objectives, are still being developed. While EBM impacts could be significant, it is not yet clear how they would compare with management practices required under the FPC or environmental certification. It should also be noted that the *Clayoquot Sound Scientific Panel* guidelines, which some might regard as a precedent for EBM, did not incorporate socio-economic factors.

MoF estimated the impacts of estimated THLB and mature timber withdrawals on harvest flows over time for each management unit within, or partly within the Plan Area. This analysis is based on standard *Timber Supply Review* guidelines, including the constraint that current AAC is to be maintained as long as possible,

---

[8] However, a discussion of some broad mitigation/compensation issues related to forestry-related impacts is outlined briefly at end of this section and in Appendix E.

[9] See *CCLCRMP: Potential Timber Supply Impact of Phase 1:* Vancouver Forest Region, June 8, 2001.)

[10] According to MoF Revenue Branch data, about 230,000 m3/yr. has been harvested on TLs in the Mid-Coast Forest District, with the remainder on the mainland portions of the Pt. McNeill and Campbell River Forest Districts.

without compromising long term harvest levels (LTHL). Although not a fixed rule, declines in harvest levels are generally in the order of 10% per decade until the LTHL is reached. MoF's Base Case for the analysis (i.e., harvest flows in the absence of the *Framework Agreement*) was based on "TSR 2" constraints including *Forest Practices Code* requirements for riparian, wildlife trees and old growth management areas as per the *Regional Landscape Unit Planning Strategy*. In cases where TSR 2 analysis was not available, MoF made adjustments to its existing TSR information to develop the Base Case harvest flows, for example:

- The Mid Coast TSA was updated to reflect decisions made during the AAC rationale in March, 2000, such as limits on the maximum harvest levels in the Outer Coast areas, helicopter harvesting areas, hemlock leading stands on poor and low sites and exclusions from the operable landbase (Jump Across, Swallop, and Nusash Creeks).
- TFL 39, Block 7 harvest flow was adjusted to reflect Weyerhaeuser's Management Plan 8 (pending approval). This Plan included the impacts of Weyerhaeuser's Forestry Project, in which much of Block 7 has been designated as an Old Growth Stewardship Zone, thus reducing the AAC.
- The Kingcome TSA and TFL 45 harvest flow were updated to incorporate TSR 2 assumptions, e.g. the *Forest Practices Code*.

Table 2 summarizes the potential, short term (i.e., first decade) harvest impacts within the Plan Area of the Base Case (incremental to AACs as of 2001) and the *Framework Agreement* (incremental to the Base Case) by management unit and by source of impact. As the Table shows, the annual harvest impact in the Base Case, is estimated at about 280,000 m3/yr., or almost 7% of the overall recent harvest level (AAC plus annual average TL harvest; see Appendix C). The analysis shows that impacts in several management units (including the North Coast, Kingcome, and Strathcona TSAs, TFL 47, and TFL 39: Block 5), can be deferred, at least until the end of the first decade. The potential harvest impacts of the *Framework Agreement* in the first decade range from about 200,000 m3/yr to 354,000 m3/yr, with the upper end of the range based on the assumption that all Option Areas eventually become PAs. Given that timber harvesting is likely to occur in several Option Areas (e.g., with First Nations management or involvement – see section 9), the upper end of the range is considered a worst case scenario that is very unlikely to occur.

Implications of Recent AAC "Under-harvest" and MoF Harvest Value Analysis

The extent to which timber harvest reductions arising from the *Framework Agreement* will result in the permanent loss of existing jobs in the Plan Area and other regions must take into account the fact that harvest levels on the Coast have averaged about 3.5 million m3/yr less than the current AAC in recent years. The cumulative under-harvest in all the management units within, or partly within, the Plan Area has averaged about 108,000 m3/yr. from 1995 – 2000.[11] Within the Plan Area, the under-harvest is particularly pronounced in the Mid-Coast TSA. The Province's Chief Forester recognized this situation by establishing a 200,000 m3/yr partitioned AAC for hemlock-balsam stands in his most recent determination for the TSA. Since existing employment levels and other, forestry-related economic activity (e.g., government revenue) are based on these recent harvest levels, it is assumed in this analysis that AAC reductions from the LCRMP would have to exceed the under-harvest of the various management units before loss of existing activity would occur.

[11] Source: MoF staff, Vancouver Forest Region. The under-harvest estimates for the Plan Area are likely understated because current AAC levels for some management units are lower than AACs in place in the 1995-2000 period.

Table 2:

Central Coast LCRMP *Framework Agreement* Potential Timber Harvest Impacts in First Decade[a] by Management Unit (cubic meters per year)

		Base Case AAC & Impacts (without *Agreement*)		Impacts of LCRMP *Framework Agreement* (incremental to Base Case impacts)				
	% of Total Mgt. Unit or AAC in Plan Area	Estimated 2001 AAC for Mgt. Unit within Plan Area	Base Case Impacts due to TSR/FPC	Proposed Protection Areas Impacts	SMZs #1 & #2 Impacts	Option Areas Potential Impacts	Total LCRMP Harvest Impacts above Base Case	Average AAC Under-harvest 1995-2000 [d]
North Coast TSA	7%	42,000	-	0	0	0	0	11,000
Mid-Coast TSA	100%	998,000	-	70,000	0	80,000	70,000-150,000	202,000
Kingcome TSA	79%	1,105,000	166,000	0	0	0	0	-59,000
Strathcona TSA	19%	243,000	-	0	0	0	0	-7,000
TFL 25, Block 5	100%	326,000	-	5,000	0	70,000	5,000-75,000	80,000
TFL 39, Block 3	100%	407,000	97,000[c]	0	36,000	0	36,000	-21,000
TFL 39, Block 5				0	0	0	0	
TFL 39, Block 7				6,500	0	0	6,500	
TFL 45	100%	220,000	30,000	0	22,000	0	22,000	-3,000
TFL 47	100%	425,000	-15,000	0	0	0	0	-95,000
Timber Licenses (in TSAs only)[b]	100%	460,000 (avg. harvest)	Not Applicable	60,000	Not Estimated	4,000	60,000-64,000	Not Applicable
Totals		4,226,000	**278,000**	141,500	58,000	154,000	**199,500-353,500[e]**	108,000

Sources: *CCLCRMP: Potential Timber Supply Impact of Phase 1:* Vancouver Forest Region, June 2001 (see Appendix F), and other data from MoF.

(a) Small Business Program impacts included in overall AAC impacts. Timber inventory based on 1998 data, and therefore first 2 years of harvesting in decade 1 have already occurred, excluding the significant under-harvest.

(b) Harvest flow impacts on Timber Licenses (TLs) within TFLs are included in MoF's timber supply analysis for the TFLs. Estimated harvest impacts on TLs in TSAs based on average harvest level over the 1995-2000 period and pro-rated by % of TL mature timber in PPAs and Option Areas.

(c) Also includes Base Case impact of Weyerhaeuser forestry project.

(d) See Appendix C. Negative number means over-harvest. Estimates not applicable for cut control purposes.

(e) Lower end of range is PA plus SMZ impacts only; upper end also includes impacts if all Option Areas were to become PAs.

To be conservative, it is assumed for purposes of this analysis that only the portion of the harvest shortfall within each of the management units in the Plan Area can be attributed to these management units. It is also assumed that impacts within TLs in TSAs (which are not included in the TSA AAC) are not affected by the under-harvest issue. An analysis of the under-harvest situation in the Plan Area, by management unit, was undertaken by MoF (see Appendix C and Table 2) and used to develop estimates of anticipated losses in existing forestry jobs associated with each unit. For the three TSAs that do not fall entirely within the Plan Area, under-harvests cannot be directly estimated so it was assumed that the shortfall can be pro-rated on the basis of the percentage of the THLB of that unit within the Plan Area. Based on this information, the under-harvest for the Mid-Coast TSA (all of which is in the Plan Area) and TFL 25 (Block 5) is estimated at 280,000 m3/yr over the 1995-2000 period. This under-harvest would "offset" all of the potential harvest impacts resulting from PPAs and Option Areas for these management units resulting from the *Agreement*.[12] However, the other management units in the Plan Area in which the *Framework Agreement* could result in short term impacts, including TFL 39 (PPAs and SMZs) and TFL 45 blocks (SMZs), had small over-harvests totaling about 24,000 m3/yr, and therefore no offsetting effects were assumed for these units.

It has been argued that the recent under-harvest has resulted in part from harvest deferrals due to the Central Coast LCRMP, which first began because of government candidate protected area "study-areas" in the mid 1990's, and were increased by "standstill" agreements between the forest industry and environmental groups in 1998. However, it should be noted that the Chief Forester did not reduce the AAC due to these deferrals. Also, MoF's timber supply analysis indicates a substantial stock of mature timber available in the Mid-Coast Forest District, which accounts for about 25% of the Plan Area AAC and is most affected by the LCRMP. The analysis indicates a stock of available, mature timber of over 13 million m3 (after taking into account Base Case constraints and the *Framework Agreement*), sufficient to sustain the current Mid-Coast AAC of 1 million m3/yr. for 13 years. This analysis includes mature timber everywhere in the TSA, including smaller, isolated patches that may be currently uneconomic to access. However, even when this stock of timber is conservatively netted down to take into account economies of scale,[13] over 5 million m3 of mature timber is still available in large blocks. Assuming that smaller patches could be accessed during stronger markets, there appears to be considerable mature timber to sustain harvest levels in the Mid-Coast TSA in the short term.

MoF's timber supply analysis is corroborated by a review of "Category A Approved Areas" (also in Appendix C) within Forest Development Plans for the two major licensees in the Mid Coast TSA (including TLs and Forest Licenses) and TFL 25, which indicates over two million m3 in approved volume for each of Interfor and Western Forest Products. At current AACs and/or average harvests in the respective management units, these volumes would provide short-term harvest opportunities for several years. It is possible that temporary delays, and/or additional costs such as road building could be incurred by licensees in accessing these approved volumes. However, according to MoF staff, most of the approved volumes in the Mid-Coast TSA and TFL 25 have, or are near road access. There is evidence that licensees have been able to increase harvest levels despite the deferrals in place in the Plan Area. For example, harvest levels in the Mid-Coast and Kingcome TSAs did increase substantially in 1999 and 2000, suggesting that volumes are available for harvesting, at least in the short term. It may also be possible to temporarily increase harvest levels in Timber License areas (which do not have AACs) or harvests (but not AACs) in other management units on the Coast (subject to cut control regulations), if market conditions warrant.

---

[12] Note that there are no base case harvest impacts to "absorb" the under-harvest in these two management units.

[13] MoF staff suggest that to be conservative, only landscape units with stocks of more than 500,000 m3 of mature volume might be counted.

Current, depressed market conditions for hemlock-balsam timber, which comprises a substantial proportion of the Central Coast Plan Area (e.g., about 66% of the Mid-Coast TSA – see Map 2), is also cited as a reason for the under-harvest. Also, it is argued that since hemlock-balsam constitutes a large percentage of the available mature timber that is still available after taking into account the *Framework Agreement*, this timber is of limited value for mitigating short term harvest impacts. However, since the hemlock-balsam "problem" is part of the existing Base Case situation, this would also constrain harvest levels in the absence of the LCRMP. And there is no evidence that the proportion of lower value hemlock-balsam in areas potentially precluded by the *Framework Agreement* is any lower (or conversely, that the proportion of higher value cedar is any higher) than for the Plan Area as a whole. In fact, the value (or "woodshed") analysis by MoF, described below, indicates that harvest areas potentially precluded by new Protection, Option and First Nations Lead Areas, are of lower than average value.

High access costs and steep terrain make much of the Plan Area a high cost supplier, which has important implications for the economic consequences of the *Framework Agreement*. For example, the value analysis by MoF estimates an average "Mean Value Index" (MVI), for April, 2000 prices, that is negative 6.63/m3, before stumpage.[14] The MVI based on average log market prices over the 1995-2000 period is positive $3.32/m3. Cost increases attributable to the *Forest Practices Code* and stumpage increases have exacerbated the cost situation over this period,[15] although more recently, stumpage rates and FPC costs have been reduced somewhat. However, MoF's analysis indicates that while up to 15.4% of the current Plan Area THLB is potentially precluded by new Protection and Option Areas, this comprises only about 5% of "High" value timber in the THLB.[16] The value analysis also indicates that only 15% of the THLB precluded by Protection, Option and First Nations Lead Areas in the *Framework Agreement* is in the "High" value timber category, compared to about 52% for the entire Plan Area. Furthermore, this analysis indicates that the timber in the Option Areas (only 12% in "High") and First Nations Areas (0 in "High") is even less economic. In other words, the *Framework Agreement* affects mainly marginal timber supplies. See Map 3 and the GIS analysis in Appendix B for the detailed area estimates.

Socio-Economic Implications

As shown in Table 3, it is estimated that the harvest reduction in the first decade resulting from the new PPAs and new visual quality SMZs in the *Agreement* would reduce harvest levels in TLs and in TFLs 39 and 45 in the Plan Area by about 125,000 m3/yr. This could place at risk about 100 person-years (PYs) of existing, direct forestry employment in BC, and an additional 115 indirect and induced jobs.[17] Based on the distribution of impacts and worker residence for each licensee, only about 5% of these impacts

---

[14] See *Central Coast Harvesting Value Assessment:* Vancouver Forest Region, Oct. 6, 2000. Mean Value Index Value is essentially net log value, defined as the average timber value (i.e., log market prices) over the 1995-2000 period minus average delivered wood cost based on the MoF appraisal manual. The MVI estimates for the Central Coast LRMP is not a MoF Revenue Branch calculation (although consistent with their methodology), and should be interpreted with care since they are based on average prices and costs, and are highly sensitive to assumptions such as the proportion of timber taken by conventional means or by helicopter.

[15] See *Financial State of the Forest Industry and Delivered Wood Cost Drivers*, KPMG for MoF, April, 1997.

[16] High value timber is defined as timber with a Mean Value Index Value of greater than $10/m3 before stumpage, of which MoF estimates there is 286,000 ha in the Plan Area's THLB, or over half of the THLB.

[17] Note these impacts are based on "Person-Year" (PY) coefficients derived from the *Central Coast LCRMP Base Case* report (MEI et. al., 2000), and are not coast-wide coefficients that include processing activities that are not supported by Plan Area harvests. Indirect and induced effects are estimated with multipliers based on the economic dependency model developed by Ministry of Finance and Corporate Relations.

would occur in the Plan Area, primarily Bella Coola and to a lesser extent in Bella Bella.[18] A more detailed breakdown of impacts by region is provided in Section 9.

As noted above, the above harvest impact estimates do not take into account the fact that short term impacts could be partly offset by increased harvests in TLs (which are not bound by AAC / cut control restrictions), or by increasing harvests of underutilized timber in non-Plan Area management units on the Coast. Also, flexibility in cut control regulations would still allow up to a 10% increase in harvest levels over a cut-control period (maximum of five years), or 50% in any one year, to take advantage of temporary market upswings. It should also be noted that even if harvest reductions resulting from the Framework did require immediate economic adjustments, they can take several forms other than employment losses. For example, harvest decreases may result in periodic curtailments of both processing and woodlands operations affecting a larger number of workers for short periods of time rather than permanent lay-offs of fewer workers, thus resulting in lower annual incomes supplemented with employment insurance. This would still reduce worker incomes but the impacts on families and communities would likely be less severe than with permanent job loss.

The under-harvest represents an opportunity for future employment increases. As shown in Table 3, PPAs and SMZs would also reduce future timber harvest opportunities by about 75,000 m3/yr, resulting in foregone employment impacts of about 60 direct PYs/yr and 70 indirect and induced PYs/yr. However, these impacts will depend on recovery of markets for hemlock-balsam and on demonstrated performance in the partitioned AAC for hemlock-balsam stands in the Mid-Coast TSA. Also, for incremental harvest increases (i.e., if improved markets increase harvest of currently underutilized timber), as for decreases, it is more likely that employees and contractors would work longer hours, resulting in an income increase rather than an increase in the number of workers.

Future employment and income opportunities are still important to unemployed workers and forest-dependent communities already facing difficult economic circumstances. However, the magnitude, timing and significance of foregone opportunities, as for other sectors, are somewhat more uncertain than for the loss of existing jobs and income. For example, if market and cost factors prevent the harvesting of the 200,000 m3 hemlock-balsam partition in the Mid-Coast TSA, then the AAC may be further reduced, and a future harvesting opportunity precluded by the Chief Forester, regardless of the LCRMP.

Additional, first decade timber supply impacts of about 154,000 m3/yr could occur if all of the Option Areas became PAs that precluded timber harvesting. This harvest represents about 125 direct forestry jobs. However, virtually all of these impacts would occur in the Mid-Coast TSA and TFL 25 in which significant under-harvests (even after taking into account PPA impacts), would offset the potential Option Area impacts. Therefore, the main impact of Option Areas would be to forego future employment opportunities. However, as noted elsewhere, protection of all Option Areas is unlikely to occur, particularly given explicit provisions in the *Agreement* for First Nations' involvement in final designations and their growing participation and interest in forestry activities to create employment.[19]

Therefore, preliminary indications are that within the first decade, the main, permanent impact of new PAs and SMZs in the Agreement might be the possible loss of about 100 existing, direct forest jobs, and

---

[18] The percentage of *Framework Agreement* forestry impacts occurring in the Plan Area is lower than for existing employment because after taking into account the under-harvest, the licensees most affected had a greater proportion of their employment outside the Plan Area.

[19] It should be noted that according to MoF staff, the Bond Sound Option Area is probably more appropriately designated as an SMZ to be managed for visual quality, which means that timber supply impacts for this area would be lower than assumed in this analysis.

the foregoing of 60 new, direct jobs in the future if markets for hemlock-balsam recover. In addition, up to 125 future, direct forestry jobs and/or associated incomes could be foregone in the unlikely event that all Option Areas also became PAs, subject to recovery of markets and demonstration of harvest performance for the partitioned hemlock-balsam AAC. Temporary dislocations of up to about 300 workers (including contractors) could result from the Framework Agreement in the short term (i.e., for 12-24 months).[20] *Temporary dislocations could be at least partly mitigated if government could expedite the planning process for new cut blocks within affected management units, if the timber is economic. However, there appears to be sufficient mature volumes available in already approved Forest Development Plans in the Mid-Coast TSA and TFL 25, suggesting that temporary dislocations in the Plan Area are more likely attributable to current market conditions (e.g., for hemlock-balsam) than the Agreement. Note any impacts attributable to the Agreement are in addition to the approximately 300 direct forestry jobs placed at risk over the next decade due to factors occurring in the Base Case.*[21]

The employment and other economic effects of new PAs and SMZs proposed in the *Framework Agreement*, are summarized in Table 3 below. Harvest levels could further decline in the Plan Area if some First Nations Lead Areas became PAs and due to eco-system based management, but the impacts of such changes are uncertain at this time. *As noted in the Base Case discussion, it is also important to consider these potential forestry sector implications in the context of the impacts that could occur in the absence of a final CCLCRMP land use agreement. Harvest reductions and related employment and other economic impacts of the magnitude outlined in this assessment, or greater, could occur anyway due to market pressure exerted by environmentalists (e.g., see Appendix D) and First Nations concerns about logging impacts on non-timber values.*

The timber supply analysis of MoF also estimated the long term timber supply impacts of the *Framework Agreement* after about 40 years, ranging from about 280,000 m3/yr for new PAs and SMZs, up to about 415,000 m3/yr if it is assumed that all Option Areas become PAs. Long term impacts are somewhat higher than first decade impacts which can be partly deferred. Based on current PY coefficients, these impacts represent a potential, additional loss of 50-65 direct forestry jobs, over and above short term impacts. However, estimates of long term impacts are very speculative, and do not take into account factors that are difficult to predict decades into the future, such as trends in technology and industry structure (e.g. declining labour intensity and consolidation in primary processing). The availability of alternative employment opportunities is also an important factor to consider, particularly in larger, more diverse economies in south Vancouver Island and the Lower Mainland, where most of the employment impacts of the *Framework Agreement* occur. Changes in product prices, operability and timber utilization can also greatly affect harvest and employment levels, although these are Base Case trends that would occur without the *Agreement*.

---

[20] The estimate of maximum, potential temporary employment dislocation associated with the *Agreement* is based on MoF's first decade harvest impact associated with PPAs, Option Areas (in which harvesting has been formally deferred), SMZs and First Nations Lead Areas totaling about 395,000 m3/yr.

[21] Includes impacts of Base Case management regime (e.g., TSR 2) plus impacts of future reduction in harvest levels for those management units in the Plan Area that are in an overharvest situation (see Table 2).

Table 3:
Potential First Decade Economic Impacts of the *Framework Agreement* on Existing and Future Forestry-Related Activity in BC

Type of Impact	Protection Areas & Visual SMZs
First Decade Harvest Impact (m3/yr)	200,000
First Decade Impact after Under-Harvest (m3/yr)	125,000
Existing Economic Activity[a]	
Employment (PYs/yr)[b]	
Direct	100
Indirect & Induced	115
Total	215
Government Resource Revenue[c]	$2.3-$3.4 million annually ($1.55-$2.25 per BC household annually)
Net Resource Value (Net Present Value @ 6%)[d]	$25.8-$46.5 million lump sum NPV ($1.00-$1.85 per BC household annually)
Foregone Harvest Opportunity (m3/yr)	75,000
Foregone Future Economic Activity[a]	
Employment (PYs/yr)[b]	
Direct	60
Indirect & Induced	70
Total	130
Government Resource Revenue[c]	$1.4-$2.0 million annually ($0.85-$1.25 per BC household annually)
Net Resource Value (Net Present Value @ 6%)[d]	$8.7-$15.6 million lump sum NPV ($0.30-$0.55 per BC household annually)

(a) PA / SMZ impact on existing activity based on short term harvest impacts in TLs and TFLs 39 and 45. Under-harvests in Mid-Coast TSA and TFL 25 assumed to offset short term harvest impacts in these management units, but result in foregone harvest opportunities. If all Option Areas become PAs, most of the impacts, which occur in Mid-Coast TSA and TFL 25, are offset by under-harvest and therefore result in foregone harvest opportunity. Option Area impacts include 4,000 m3/yr in TLs, which could have minor effects on existing economic activity.

(b) Direct impacts based on coefficient of .80 PYs/'000 m3 for woodlands and sawmilling, excluding pulp and paper and value-added since these sectors are not strongly linked to incremental harvest changes (see *LCRMP Socio-Economic & Environmental Base Case*, MEI et. al., 2000). Indirect and induced impacts based on weighted average multiplier for logging / milling of 1.15 (Ministry of Finance and Corporate Relations).

(c) Based on average target stumpage rates for the Coast of about $13.05 (rates as of April, averaged over 1990 to 1994, excluding Forest Renewal BC estimated share of revenues) to $21.65 / m3 (rates as of April, averaged over 1999 to 2001, including FRBC) and corporate taxes of $5.25 / '000 m3 for the years 1994-99 (*The Forest Industry in British Columbia*, Price Waterhouse Coopers). Per household estimate based on 1.5 million households currently in BC and per household foregone timber value assumes 10 year harvest delay and 10% growth in population over the next decade.

(d) Net present value of timber resource rents lost or foregone, based on average indicated stumpage rates for the Coast of about $12.40 (average rates 1990-94, excluding FRBC) to $21.65 / m3 (average for 1995-2000, including FRBC), discount rate of 6%. Annualized value per household based on 1.5 million households in BC. Harvest of foregone (i.e., currently under-harvested) timber assumes 10 year delay and per household foregone timber value assumes 10% population growth over the next decade. Annualized value represents additional amount each BC household would have to be willing to pay annually to achieve the environmental and other benefits associated with the *Agreement*.

Estimates of annual government revenue impacts in the first decade resulting associated with PPAs and SMZs in the *Framework Agreement*, both losses in existing revenues ($2.3-$3.4 million/yr, or $1.55-$2.25 per household) and foregone future revenues (an additional $1.4-$2.0 million/yr), are provided in Table 3. The lower end of the range assumes that Forest Renewal BC's share of stumpage does not represent net government revenue since it is reinvested in the forest industry. Annual government revenue impacts would increase somewhat over time as harvest impacts increased (see above paragraph), although these future revenue impacts would also be discounted for the "time value of money", and as alternative sources of government revenue emerged with overall economic growth. There could be additional government revenue foregone of up to $4.1 million/yr, or $2.50/yr per household if all OAs become Protection Areas, and currently under-harvested timber became economic.

The economic efficiency implications of the *Framework Agreement*, as represented by the net value of the timber resource, are also presented in Table 3. The indicated stumpage rate is used here as a proxy for the net resource value of timber, as recommended by the Province's *Guidelines* for socio-economic evaluation of LRMPs.[22] The net present value (NPV) of timber resource rents lost as a result of the PPAs / SMZs in the *Agreement* is estimated at about $26-$47 million, based on average indicated stumpage rates for the Central Coast and a discount rate of 6%. The annualized value per household (i.e. constant annual amounts which when discounted at 6% yield the NPV estimates) for lost timber rents is roughly estimated at $1.00/yr-$1.85/yr, per household. This value represents the additional amount each household would have to be willing to pay annually to achieve the environmental and other benefits associated with the losses in existing timber harvests resulting from the *Framework Agreement*. There could be an additional net resource value foregone of up to $27-$48 million, or $0.95/yr-$1.75/yr, per household, if all Option Areas became PAs and if currently under-harvested timber became sufficiently economic that it began to generate rents (i.e., over and above a normal rate of return on capital).

It is likely that unless timber values increase substantially in the future, average indicated stumpage for recent years overstates the net resource value of timber harvests lost or foregone because of the *Agreement*. This is because much of the timber affected by the *Agreement* is only marginally viable based on average prices over the 1995-2000 period. As indicated in MoF's value analysis, the "Mean Value Index" (i.e. net value) of Plan Area timber based on average 1995-2000 prices, before stumpage, is estimated at $3.23/m3, compared to indicated stumpage of $12.40/m3 to $22.30/m3. MoF's analysis also indicated that the timber affected by the *Agreement* is of lower value on average than for the Plan Area as a whole. If the estimated MVI for the Plan Area is used as a proxy for net timber value rather than indicated stumpage, the NPV of timber resource rents lost as a result of the PAs / SMZs in the Agreement is estimated at about $6.7 million, equivalent to an annualized value of roughly $.27/yr per household.

Mitigation and Compensation Considerations

The *Framework Agreement* calls for a funding mechanism to be established by the Province, industry and non-government organizations of up to $55 million to provide compensation for short term dislocation of workers (i.e. within one year), and in the longer term to serve as seed funding for an economic development trust. The focus of this assessment is not to determine appropriate levels of worker/community/industry compensation or appropriate economic transition strategies. However, from a socio-economic impact perspective, the creation of a compensation fund for workers/communities would substantially mitigate impacts and ease transition for potentially displaced workers and affected communities.

---

[22] *Social and Economic Impact Assessment for LRMPs in BC*, op.cit.

The use of mitigation / compensation funding does not mean that there are no economic costs resulting from the forestry impacts of the *Framework Agreement*. However, such a mechanism could change the nature and distribution of these impacts. For example, while workers losing jobs as a result of the *Agreement* would still likely experience income reductions, they would not likely be as significant as otherwise. However, if workers had to relocate for training or to pursue other job opportunities, their income could still be lost to local communities. Also, while worker incomes might be supported, the cost to government would increase. Government would incur some costs anyway for income support payments (e.g., employment insurance) that are automatically triggered by dislocations, but magnitude and the sharing of such costs among provincial and federal governments would be altered.

With respect to the employment compensation issue, it should be noted that the incremental impact of the *Agreement* on the mill closure recently announced by Interfor (Fraser Mills in Coquitlam) appears to be minor. For example, the first decade impact on Interfor's Forest License, TFL and Timber License harvest levels is estimated at up to 160,000 m3/yr. The upper end of the range assumes that all of the Option Areas become PAs (which is unlikely), and that all of the precluded areas are economic for timber harvesting. This harvest impact comprises less than 4% of Interfor's total Lower Mainland sawmilling capacity estimated at 3.5 million m3/yr.[23] Since the timber from the central coast supports a number of mills, the incremental impact on any one facility would be minor. However, even if all of the LCRMP impacts fell on Interfor's Fraser Mills facility, it would comprise about 25% of that mill's capacity of about 650,000 m3/yr.[24] After taking into account the average under-harvest on Interfor's Mid-Coast and Kingcome TSA allocations in recent years, the potential, permanent impact would be about 15% of Fraser Mills' requirements. There also appear to be sufficient timber volumes already approved for harvesting by Interfor in the Mid-Coast TSA alone that would operate Fraser Mills for several years. Impacts of the *Agreement* on Doman/Western are similar, up to 160,000 m3/yr, but cannot be tied to the possible closure of any of the company's sawmills, since Doman's recent under-harvest (averaging about 200,000 m3/yr.) and approved timber volumes in the Mid-Coast TSA and TFL 25 appear sufficient to maintain Doman's harvests in those management units at current levels for several years. Further discussion of the implications of compensation / mitigation package announced in conjunction with the *Framework Agreement* is presented in Appendix E.[25]

---

[23] According to MoF, the Mid-Coast TSA accounts for about 10% of Interfor's sawmill requirements in the Lower Mainland (TSR, June, 1999), which would suggest a total requirement of over 3.5 million m3/yr.

[24] It is assumed that First Nations Lead Areas do not become PAs and that aside from temporary deferral, the volumes are still available to Interfor in the short term.

[25] The closure of sawmills appears to be part of a longer term strategy by licensees to consolidate and increase the efficiency of processing facilities. For example, Interfor has recently purchased two sawmills from Primex (which together have about the same capacity as Fraser Mills and are more efficient facilities) despite the fact that these mills do not have any timber tenures.

3. TOURISM AND RECREATION

3.1 Base Case

General Considerations

Visitors can access the Plan Area by Highway 20 from Williams Lake, by ferry from Port Hardy, by private/charter sea vessel, or by scheduled/charter air service from Vancouver, Campbell River, Port McNeill, Port Hardy, and Anahim Lake. For the purposes of this analysis, recreation is defined to include various outdoor adventure activities pursued by both visitors and residents. Tourism, however, only refers to economic activity generated by non-residents of the immediate area (i.e., those traveling in excess of 80 kilometres) including those visiting for business purposes.[26] It is also assumed that "back-country/wilderness" activities (i.e., tourism activities involving more remote, "nature-based" experiences) are much more strongly linked to land and resource use than is "front-country" tourism (i.e., activities associated with hotels, restaurants, etc. in established communities). This assessment focuses largely on the back-country component, although many of the statistics reported are aggregated to represent all Plan Area tourism activity.

As of the 1996 Census, tourism accounted about 16% of Plan Area resident employment (~320 jobs) and 10% of personal income in 1996. The local tourism industry is very dependent on the area's high quality outdoor recreation opportunities, in particular, sport fishing, marine touring, hiking, cross country skiing, wildlife viewing, kayaking, camping, and hunting. Most of the recreational activities in the Plan Area tend to be marine-based, and therefore have a strong linkage to coastal resources. Based on Ministry of Tourism visitor spending figures, total (resident and non-resident) tourism employment supported by the region is roughly estimated at 540 jobs (the majority of which have annual wages of under $20,000 and/or are seasonal) of which about 295 are attributable to companies that offer visitor packages (e.g., fishing lodges, charters), 60 to the accommodation section, 20 to the vehicle service sector, 95 to other transportation companies, 55 to the food services sector, and 15 to other components of the retail and visitor service sectors.[27]

The Plan Area has an estimated 66 fixed roof accommodation facilities (50 lodges of various sizes, ten hotels/motels, and six "Bed & Breakfast" establishments), one BC Parks campground with 39 sites, five BC Forest Service camping areas with 18 sites, and three private campgrounds with a total of 110 sites. The Broughton Archipelago, including its marine park, is one of the region's most heavily used marine recreation areas, hosts between 60 and 80 marine tourism operators on a regular basis and another 20 to 40 on an occasional basis (these figures include lodges and fishing charters). The Hakai Recreation Area also attracts hundreds of tourists each year as it offers some of the finest fishing opportunities along the Central Coast.

In terms of an overall Base Case trend for tourism activity in the Plan Area, the "Accommodation & Food Services" labour force data in Table 6 of Section 3.2 could be used as a proxy for tourism

---

[26] Business travelers are included as per Ministry of Small Business, Tourism and Culture policy, which in turn follows an international convention. It is not clear what proportion of the tourism activity in the Central Coast is related to business travel, but it is understood that most visitors in the late Fall, Winter, and early Spring are traveling mainly for work-related purposes.

[27] See CCLCRMP *Socio-Economic and Environmental / Marine Base Case* (December, 2000) for an explanation of the methodology used to derive these estimates.

employment growth. There has been a 26% overall growth in accommodation and food labour force over the 1986 to 1996 period. If applied to total, resident tourism employment in the Plan Area, this represents an increase of some 65 jobs over 10 years. While relatively small compared to the 2000+ member labour force, this trend compares favorably to the other main resource sectors (i.e., forestry and commercial fishing, excluding aquaculture), neither of which grew consistently during this decade.

Nature-Based and Back-Country Tourism/Recreation

For many back-country recreationists, relatively pristine "wilderness" is an important consideration. While difficult to define and measure, MoF does have an inventory of "Undeveloped Watersheds" (UWs) that is one proxy for wilderness. About 2,056,000 ha or 43% of the Gross Land Base (GLB) was classified as UWs when the inventory was done in the early 1990s, and of these, 20.4% are in existing Parks and Recreation Areas. However, it is the lands at mid and lower elevations (i.e., those in the CWH and MH biogeoclimatic zones) have the highest probability of timber extraction, and therefore have the highest potential impacts on recreation values – the inventory indicates there are 1,261,000 ha of such lands in the Plan Area, but only 9.2% are in existing Parks/Recreation Areas.

A somewhat more detailed indicator of back-country opportunities, again focussing on the terrestrial component, is MoF's "Recreation Opportunities Spectrum" (ROS) classification, which classifies the Plan Area using distance from roads as the main criterion.[28] The most recent inventory of the Plan Area GLB shows that 3,246,000 ha. (~70%) are classed as ROS 1 through ROS 3, which are considered to provide a primitive or semi-primitive wilderness experience. The GIS work also indicates that 5% of these lands are in existing Parks/Rec Areas.

Therefore, at least the THLB portion of at least 90% of these relatively pristine lands would be open to roaded development, leading to increased risks to some backcountry tourism operations gradually over the long term. It is unclear what proportion or to what extent the tourism industry is dependent on such wilderness values, however 1999 BC Stats data indicates that 6.4% of tourism-related business establishments were classified as "adventure tourism" in nature. This proportion is almost certainly much higher in the Plan Area, since 50 of 66 fixed roof accomodations are classified as "lodges" (in addition to any guide camps) and the MSBTC tourism inventory indicates that most other "tourism facilities" consist of fishing/marine charters (42) and "adventure tours" (31). Thus while growth in such "eco-based" activities would likely continue into the forseeable future (subject mainly to sport-fishery populations/policies) in the Base Case, there could come a time where resource development would compromise key values and threaten such growth. However, given the significance of marine tourism/recreation (e.g., sport fishing) and lodge-based activities, is it more likely that visual quality near the high use coastal areas is of more importance to the sector than is wilderness preservation in the terrestrial back-country.

Visual Quality

Because of the assumed relatively strong linkage between many "nature-based" tourism/recreation activities and the land/coastal resource base, especially in marine areas and along rivers/lakes, scenic quality is a key issue for tourists and residents.[29] This statement not only applies to those who actually

---

[28] "Primitive Non-Motorized" (ROS 1): >8km from a 4-wheel drive road & >5000 ha.; "Semi-Primitive Non-Motorized" (ROS 2): >1km from a 4 -wheel drive road & > 1000 ha.; "Semi-Primitive Motorized" (ROS 3): >1 km from a 2 - wheel drive road & > 1000 ha.

[29] See *Clearcutting and Visual Quality - A Public Perception Study*: Ministry of Forests, 1996.

visit the Plan Area, but also to individuals such as cruise line passengers, who also enjoy the scenery of BC's Inside Passage. [30]

To represent scenic values that are of concern both currently and in the future, MSBTC has mapped areas in the Central Coast it considers are most important visually from both its "overall tourism" vantage point as well as from the perspective of Plan Area communities. By overlaying the THLB on these visually sensitive areas, it is apparent that 34.1% of MSBTC Priority #1 Areas and 51.8% of Community Priority Areas occur under a partial retention VQO regime or better, where the lowest risks to visual quality from timber harvesting would occur in the Base Case. However, this also implies that significant portions of these visually sensitive areas would be compromised over time under General Management zonation, depending on future VQOs and the nature and extent of "variable retention" harvesting that would be practiced by forest licensees. From a Gross Land Base perspective, note that 6.6% of Priority #1 Areas are contained in existing Parks and Recreation Areas.

Another visual inventory that is included is that of MoF-designated "Scenic Areas," which are a more conservative representation of visually sensitive lands. While these areas are not as extensive as the MSBTC Priority #1 Areas, they do take into account public input, and a significant portion, 65.8%, is contained in partial retention VQOs or better.

Of the 98 "Existing Tourism Facilities" that MSBTC has mapped for the Plan Area, under Base Case current management 14.3% are situated in Preservation/Retention VQO zones, 43.9% are in Partial Retention VQOs, and 5.1% are in existing Parks/Recreation Areas. This data suggests that active visual management is occurring for about 60% of these operations, with the remainder at higher risk of visual impacts, depending on the nature of the operation and its location with respect to the THLB.

Sport Fishing and Hunting/Guide-Outfitting

The tourism/recreational activities associated with sport-fishing can be classified into lodge packages, charter angling, and public angling. The sport fishing sector is likely responsible for at least one-third of local tourism jobs and revenue in the Plan Area. Overall BC data for sport and commercial salmon fishing indicate that with only about 3% of the overall salmon catch, the sport fishery generates approximately 50% as many jobs as the entire BC commercial salmon fishery. While the comparison is done at a provincial level, this information is also relevant to the Plan Area.

According to MSBTC's Tourism Resource Inventory, there are a total of 50 floating and land-based fishing lodges, which cater mainly to affluent anglers. Rivers Inlet, the Bella Coola River and other Central Coast areas are renowned for their large chinook and northern coho. Over half are owned or operated by non-residents of the Plan Area, mainly because the locations are remote and investment capital in the Plan Area is scarce. An estimated 42 charter companies operate in the Plan Area, some of which also offer marine sight-seeing and other services. Of these known charter operators, five are based permanently in the Plan Area, although economic spin-offs to the Plan Area would occur from virtually all of these businesses.

From a provincial perspective, a recent BC STATS analysis identifies downward trends in the salt and fresh water sport-fishing sectors in BC, in part due to additional federal management measures aimed at coho conservation, which were declining dramatically. Such measures are expected to last for several

[30] While cruise ships do not currently stop in the Plan Area, it is understood that one line will be stopping at least weekly in Prince Rupert during the summer beginning in 2003.

years and will contribute to expected continued volatility in this sector. However, opportunities do exist for sport fishing operations to diversify to other species (halibut, ling cod, rockfish, flounder, sole, etc.) as well as for complementary compatible activities, e.g. eco-tourism (sea kayaking, whale watching, marine adventure touring, etc.).

The Plan Area also contains significant and highly pristine freshwater angling opportunities. The Ministry of Fisheries estimates that there are over 150 freshwater angling guides operating in the Plan Area and in the Bella Coola area alone, with angling license sales averaging over 6,000 annually. Guided activity occurs on 11 "Class 1" and "Class 2" streams (i.e., highly productive trout streams, of which there are a total of 42 in BC). In addition, non-guided angling occurs on hundreds of lakes and thousands of kilometers of rivers/streams in the Plan Area. The Dean River, classified by the BC Ministry of Fisheries as "Class 1" (with limits on the number of angling guides and guided angler days), is particularly well known for steelhead angling.

Both guided and non-guided hunting activities occur in the Plan Area, which coincides approximately with seven BC Environment Wildlife Management Units (WMUs) and eight guide-outfitter's territories. It is understood that six of these operators have a permanent residence outside the Plan Area. The most hunter effort tends to be devoted to mule deer, followed by moose (except in the southern portion, where no moose hunting is allowed), black bear, grizzly bear, and goat respectively. The number of animal kills in the Plan Area has been fairly stable in recent years, with harvest levels generally correlated with hunting effort for each species. Data to indicate the social/economic significance of hunting and guide-outfitting to the Plan Area are not available. However, it is known that hunting is a very important part of the subsistence economy to many individuals in the Plan Area, primarily members of First Nations. Regarding Base Case trends, the health of this sector is obviously most dependent on wildlife populations. In the absence of a land use plan, the Base Case environmental analysis concludes grizzly, black bear, and goat populations are at moderate-high risk, thus threatening portions of the guide-outfitter sector over time. [31]

3.2 Implications of the *Framework Agreement*

General Considerations

As is the case with the other sectors, for tourism it is really only the proposed Protection Area (PPAs) designation in the *Framework Agreement* for which meaningful impacts can be assessed, since long-term zoning recommendations for the remaining 79% of the Plan Area are incomplete. (Even the visual quality emphasis that is placed on SMZ's #1 and #2 is unclear and subject to the outcomes of future process, as discussed in Appendix III of the *Framework Agreement*.) The GIS work indicates that in addition to the 8.1% of the Plan Area in existing Parks and 2.7% in Recreation Areas (Hakai and Fiordland, where mining is allowed but not commercial timber harvesting), the PPAs recommended in the *Framework Agreement* amount to an additional 9.9% plus conversion of the Recreation Areas to an alternative form of protection. The implications of these recommendations for tourism/recreation are outlined in this section.

---

[31] Another factor that is part of the Base Case, and not related to the *Framework Agreement*, is the three-year BC grizzly bear hunting moratorium announced by the government in early 2001. At the time of writing, it appears this moratorium is in question, any change in which may prompt international economic boycotts of at least some amount of tourism in BC.

Proposed Protection Areas

The *Framework Agreement* recommends 76 new land-based PPAs comprising some 580,000 ha. (including Recreation Area conversions, for a total of 12.6% of the Plan Area). In addition there is a preliminary estimate of about 106,000 ha. of area covered by water (about 70% is due to Hakai alone) attached to various terrestrial PPAs. As alluded to above, given the interim nature of the *Framework Agreement* and the uncertainty regarding most of the zoning, it is the proposed PAs component that has by far the most significant and relevance to tourism/recreation in the Plan Area. Note that the *Agreement* does not provide a detailed list of allowable uses in PPAs (including if current uses are to be "grand-parented"), but does specify in Appendix II that:

- commercial forestry, mineral exploration and development, an hydro-electric development is not permitted (while not explicitly mentioned, it is assumed that "minerals" includes oil and gas);
- additional uses in and adjacent to PPAs (including aquaculture) will be determined on the basis of more detailed planning for such areas; and
- a range of designations may be used to designate PPAs (e.g., conservancy, Protected Area, Tribal Park, etc.) in a manner that addressed First Nations concerns.

A listing of the each of the PPAs, terrestrial and marine sizes, and a brief description of their key values from a tourism/recreation perspective are included in Table 4.

Table 4:
Tourism and Recreation Values in Proposed Protection Areas

Name of PPA	Total Area (ha.)	Land Area (ha.)	Key Existing and Potential Tourism/Recreation Values
Ahnuhati Complex	*52336*	*51581*	***High salmon, steelhead, and trout angling and wildlife viewing values; high use by kayakers/yachts; anchorages***
Ape Lake	***23969***	***23718***	***Accessible from Bella Coola valley***
Bella Coola Estuary	350	128	Salmon & steelhead angling; near existing community
Bentinck Estuaries	525	247	Salmon angling, kayaking, anchorages.
Boat Bay	659	607	Kayaking, angling, wildlife viewing, scenic intertidal beach, anchorage
Broughton Extension	4089	3920	Unspecified values
Burdwood Group	124	109	Anchorages, boating, angling, wildlife viewing.
Cape Caution	***14366***	***12896***	***Large/remote sandy beaches, kayaking routes/campsites, scuba diving, anchorages***
Carter Bay	406	254	Scuba diving (wreck), Carter Ck. Salmon stream & waterfall
Catto Creek	***6611***	***6567***	***Unspecified tourism sector interest***
Chapple Cornwall	***25509***	***23992***	***Unspecified, but Gitga'at interest in area***
Clayton Falls	***5402***	***5260***	***Near Bella Coola, high local recreational interest***
Clayak Estuary	295	256	Wildlife viewing.
Codville Extention	1226	1078	Anchorage, beach area, access to Sagar Lake, near Ocean Falls
Cranstown Point	314	117	Sand beaches, kayaking, camping, day use for fishing charters.
Cullen Harbour	231	213	Anchorages, boating, angling, wildlife viewing.
Dean Corridor	***5168***	***4304***	***Very high angling values, historic cultural site***
Deserters/Walker	871	688	Kayaking, scuba diving, historic cultural site
Duke of Edinburgh	N/A	N/A	Seabird watching, some camping on pocket beaches
Eucott Bay	411	313	Anchorage, beach, hotsprings
Fiordland	*74765*	*72214*	***>1000 metre granite cliffs, anchorages***

Table 4 (cont.):

Name of PPA	Total Area (ha.)	Land Area (ha.)	Key Existing and Potential Tourism/Recreation Values
Forward Harbour	679	409	Anchorage, popular sport-fishing area, archeological sites
Genesse Wetland	120	103	High grizzly/salmon values
Goat Cove	296	222	Scuba diving, anchorage
Hakai	***122633***	***50183***	***Very popular for sport-fishing and kayaking***
Hanson Island	1455	1454	Unspecified tourism sector interest
Hotsprings/No Name	***24212***	***24150***	***Hotsprings, hiking, historic village site.***
Khutze	***34544***	***33826***	***Very high grizzly/salmon values, hotsprings, kayaking, canoeing, main anchorage adjacent to Inside Passage***
Kimsquit Estuary	132	57	Good sportfishing, anchorage, beach
Kingcome Estuary	295	60	High salmon values, moderate kayaking use
Klinaklini Estuary	647	355	Low-moderate tourism/recreation values
Koeye	***18343***	***17395***	***High salmon productivity, 2 moderate-sized lakes, sport fishing, white sand beaches, anchorages, wildlife view, cultural sites***
Kwatna Estuary	334	174	Sportfishing, very high cultural values
Laidlaw/Aitken	1212	681	Kayaking, camping.
Lockhart Gordon	***34025***	***33527***	
Neechantz/Machmell	282	155	Grizzly/salmon values
Nekite Estuary	265	131	Important salmon river, sportfishing values
Numas Islands	185	149	Groundfish sport fishery, cultural sites
Oliver/Lady Douglas	***5461***	***4901***	***Anchorages, shipwreck, fisheries values, cultural artifacts***
Outer Coast Islands	N/A	N/A	Kayaking, rich marine life
Phillips Estuary	1618	1209	Cultural artifacts
Polkinghorn	154	138	Anchorages, kayaking/campsite, cultural sites.
Port John	28	28	Cultural sites, pictographs.
Quatlena Estuary	133	21	Summer-run steelhead sport-fishing
Racey Inlet	***5008***	***4454***	***Scenic waterfalls, anchorages, hiking trail***
Rescue Bay	424	273	Anchorage, cultural artifacts, crabbing.
Restoration Bay	749	728	Significant beach, historic site, whale watching
Seymour Estuary	341	240	Wildlife viewing, moderate salmon values, cultural site
Sheemahant Wetland	484	139	Sport fishing, grizzly bear use, cultural artifacts
Skowlquitz Estuary	65	27	Unspecified recration/tourism values.
Smithers Island	105	0	Anchorages, bight on south shore.
Smokehouse	***38283***	***35602***	***Grizzly/salmon values, fishing in Long Lake, canoeing, camping.***
Spirit Bear	***91145***	***84831***	***Wildlife viewing (Kermode bears), high salmon values, camping, fishing, kayaking, cultural sites/artifacts***
Stafford Estuary	626	495	High fisheries values, anchorages, cultural site
Swindle/Price	***10417***	***10161***	***Kayaking, beaches, anchorages, waterfalls, cultural site***
Thorsen Creek	9	9	Petroglyphs, waterfall
Thurston Bay	863	201	Anchorages, trails, large lake, cultural artifacts
Troup Passage	2535	2178	High boating/kaying values, scuba opportunities, cultural values
Upper Kimsquit	***10652***	***10439***	***Unique grizzly/salman values, First Nation grease trail.***
Upper Klinaklini	***40220***	***36509***	***Unspecified tourism interest***
Wakeman Estuary	314	149	Sportfishing, grizzly bear viewing, anchorage
Walkus Lake	895	785	Trout fishing, cultural artifacts (grizzlies limit tourism potential)
Yorke Island	423	38	Whale watching, historic military site.
Total Hectares	**687,124 ha.**	**580,846 ha.**	

Source: Land Use Coordination Office; BC Environment (Nanaimo).
Note: "Goal 1" PPAs shown in bold italics.

A brief discussion of the area covered by the (former) Hakai Recreation Area is warranted. This large terrestrial/marine area was designated by BC Parks in the late 1980s, and has a wide variety of significant attributes such as rich sea-life, high sport fishing and kayaking values, etc. It is an area of high traditional and sustenance importance to the Heiltsuk. It is understood that the Heiltsuk have not been supporters of the BC Parks Recreation Area designation, due to the increased visitation that offers few local benefits and may threaten fish populations, conflicts with tourism operators, and limitations on traditional use (e.g., food harvesting). The Heiltsuk have therefore been attempting to gain more control over management of the Hakai. While the *Framework Agreement* map indicates that Hakai is proposed as a "Protection Area," there is no language to describe a recommended management regime. However, in January 2001, a government *Order-in-Council* (OIC) has specified that Hakai is to be a "Conservation Study Area" while further discussions on management occur. BC Parks indicates that while management is as yet unchanged, the OIC is likely a welcome step from the Heiltsuk perspective, and existing commercial permits do not appear to be affected at this time although their future status is uncertain.[32]

Nature-Based and Back-Country Tourism/Recreation

For those values that are important to nature-based tourism operators, the PPAs specified in the *Framework Agreement* generally result in significant increases in protection of those values, as shown via the same map-based indicators that are used in the Base Case.

With respect to those lands without a significant amount of existing roads (i.e., classified as ROS 1 through ROS 3), 17.3% are contained in existing Parks and PPAs vs. the 5% in the Base Case that are contained in Parks/Recreation Areas. Looking at the same value but only for those lands in the Plan Area that are considered to be "Timber Harvesting Land Base" (THLB), the *Framework Agreement* places 13.3% of ROS 1 – ROS 3 THLB lands in PPAs (none of the THLB is in existing Parks/Rec Areas in the Base Case by definition.) The Undeveloped Watershed (UW) results are similar. From a Gross Land Base perspective (see Map 4) the *Framework Agreement* results in 36.6% of UW's and 31.3% of Low-Mid Elevation UW's in Parks and PPAs vs. 20.4% and 9.2% respectively in Base Case Parks/Recreation Areas. In addition 30% of Low-Mid Elevation UW's within the THLB are overlain by PPAs.

To the extent that specific existing tourism operations also depend on wilderness attributes, and assuming such operations are grand-parented into PPAs, the *Framework Agreement* is a significant improvement over the Base Case. Of the 98 facilities contained in the tourism inventory, 14.3% are in existing Parks and PPA's [see Map 5(a)] vs. 5.1% in the Base Case. As for about 112,000 ha of areas surrounding the immediate vicinity of these facilities, the *Framework Agreement* places 24.8% in existing Parks and PPAs, vs. about 7% in Parks/Rec Areas in the Base Case. Moreover, 24.5% of facilities and 12% of areas around facilities are situated in SMZs #1 and #2.

Visual Quality

Because of the way the GIS personnel were directed to do their analysis, it is difficult to compare the managment of visually sensitive areas in the *Framework Agreement* vs. the Base Case. This is because, while the Base Case zones include existing Preservation, Retention, and Partial Retention VQOs which

[32] The OIC states that "The purpose of this order is to establish the study area to replace the Hakai Recreation Area in order to expedite public discussions on the development and establishment of a protected area in and around the study area with boundaries and management structures acceptable to the Heiltsuk Nation and the Province." As for continuation of existing commercial permits, it also states that "Resource Use Permits issued in the Hakai Recreation Area before the coming into force of this order are conclusively deemed to have been validly issued in compliance with the *Park Act* as it read on the respective dates on which the permits were issued."

overlaid the visually sensitive areas, due to lack of direction in the *Agreement*, these "Base Case VQOs" were not inserted into the GIS overlays for that scenario. However, it is assumed that visual management under the *Agreement* will, if anything, be more constraining to timber harvesting than in the Base Case. This is due not only to the additional PPAs, but also due to the language in the *Framework Agreement* (in Appendix III of the documentation) that recommends extensive future public process in setting VQOs in not only the SMZ #1 and #2 areas, but also throughout the remainder of the Plan Area.

Therefore, using the Base Case as a minimum, it is assumed that on the THLB, the *Framework Agreement* would eventually result in more than 34.1% of MSBTC Priority #1 areas, 51.8% of Community areas, and 65.8% of MoF Scenic areas being designated under partial retention or more constraining regimes, including PPAs [see Map 5(b)] For example, while there is some overlap with the Base Case VQOs, it is noteworthy that the *Framework Agreement* places a combination of 46.3% of Priority #1 Areas in PPAs and SMZs #1 & #2, including Cape Caution and significant parts of Princess Royal Island, the Broughton/Gilford Islands, and Knight Inlet, and the Thurlow/Sonora Island areas. Also, with additional visually sensitive lands contained in Option and First Nation Lead areas, as well as anticipated future ecosystem-based management practices to cover most of the Plan Area, future erosion of visual values in the Plan Area is expected to be far less pronounced than in the Base Case.

Sport Fishing and Hunting/Guide-Outfitting

Other than what has been discussed above, the *Framework Agreement* has little or no specific direction with respect to these sub-sectors of the Plan Area tourism sector. Moreover, the economic viability of these activities are driven largely by external "non-LCRMP" factors such as the U.S. economy, global oceanic/climatic conditions, and federal and provincial government fishing/hunting policies on resource allocation. The possible closure of federally-regulated sport and commercial fisheries within marine PPAs, could result in the relocation of existing sport fishing lodges. However, there is no direction for such closures recommended in the *Framework Agreement*. It is also possible that closures of these areas could enhance some fish populations and increase harvest opportunities outside of PPAs.

The *Agreement* could also affect fish/wildlife populations via habitat conservation measures, particularly as it affects timber harvesting. According to the environmental analysis, the *Framework Agreement* is a general improvement for fish and wildife due to the PPAs, although any final conclusions are still highly dependent on the content of an eventual final LCRMP. Thus over the long term, other variables unchanged, prospects for sport fishing and hunting/guide-outfitting are improved vs. the Base Case.

Potential Tenure Impacts in Proposed Protection Areas

While the *Agreement* contains many positive strategic-level measures to protect visual quality and nature-based tourism/recreation experiences, the lack of direction as to whether existing tenures and outstanding tenure applications will be grand-parented in PPAs is of concern to tourism interests.

The GIS area statistics indicate that there are 216 existing BC Assets and Lands (BCAL) licenses/leases/tenures and 129 applications in the Plan Area. The data is not broken down by type of tenure or sector (e.g., Commercial Backcountry Recreation, log storage, etc.), but BCAL (Nanaimo) staff estimate that about 50% of each are log storage tenures/applications. Further information supplied by BCAL suggests that, subject to boundary refinements, the following tourism interests could be alienated if not grand-parented via future LCRMP deliberations:

- The Dean Corridor PPA overlays four sportfishing camps and also overlays some additional private land that provides access to another camp;
- Two existing guide camps (one fishing and one hunting) are located near Koeye Lake within the Koeye PPA;
- Two existing CBR tenures for fishing resort and hiking use and four additional CBR tenure applications for accommodation structures within the Upper Klinaklini PPA (Trophy Lake area);
- One existing CBR tenure for a floating sport-fishing lodge in the Lockhart-Gordon PPA
- Three potential CBR sites, currently under one application, are located in the Ahnuhati, Seymour Estuary, and Smokehouse PPA's – it is understood that these sites are already being used by the operator, primarily as landing sites for sport-fishing (Note that his one application covers 20 sites within the Plan Area);
- A CBR tenure application for an accommodation structure for whale-watching/kayaking tourists is located in the proposed Cape Caution PA; and
- Three CBR tenure applications for kayaking and related back-country uses (as well as six other known non-tenured users) in the proposed Spirit Bear PA.

Furthermore, as noted previously, the future status of tenures in the Hakai and Fiordland PPA's are unknown. The risks to these tenures may be higher since it is understood that the Heiltsuk are interested in co-management of Hakai and have expressed concerns about conflicts with existing operations. It is understood that the Kitasoo also have an interest in Fiordland. According to BC Parks (Williams Lake), there are 17 park use permits in Hakai, of which 15 are for tourism/recreation use: eight anchorages, five fishing resorts/wharves, and two kayaking operations. There are five permits in Fiordland, including two anchorages and two game/angling guide operations.[33]

Conclusions regarding Tourism & Recreation Implications of Framework Agreement

As for front-country tourism operations (e.g., accommodation/food services in Bella Coola), the *Framework Agreement* will have only subtle and very long term implications. However, the longer term lower risks to fish/wildlife populations due to the PPA's and the general direction for a future eco-system based management regime, as well as measures to better manage for visual quality, will be of benefit to nature-based tourism/recreation activities in the Plan Area over time compared to Base Case trends.

A key short term concern, though, is the status of nine existing commercial recreation tenures and 11 applications in PPAs and the 19 park use permits for tourism/recreation activities in Hakai/Fiordland for which the *Framework Agreement* is silent in terms of grand-parenting provisions. It is understood that there are no CBR tenures or applications in Option and/or First Nations Lead areas, but it is unclear how any such future applications will be affected over the next few years before the CCLCRMP is completed.

Finally, it is noted that Appendix VI of the *Framework Agreement* specifies a future "MSBTC Strategic Plan" be designed and a pilot project initiated for "an appropriate planning unit" in the Plan Area. It is unclear what the ultimate affect of such planning would be and some of the specific tasks appear to be excessively ambitious (e.g., "estimate carrying capacity" and "determine visitor awareness and response to environmental factors"). However, to the extent that better working relationships between tourism operators and other user groups would be fostered, such planning could be of benefit to the tourism sector, which traditionally has not had significant input into resource management decisions.

---

[33] The remaining existing park use permits are comprised of one for scientific research and one for a communications site in Hakai and a Western Forest Products permit for an unextinguished part of its TFL in Fiordland.

4. COMMERCIAL FISHERIES

4.1 Base Case

As of the 1996 Census, fishing-related activities provided about 8% of the personal incomes of Plan Area residents Also, First Nations residing in the Plan Area have historically depended heavily on a wide range of salmon and non-salmon fisheries for food, social, economic, and ceremonial purposes, and are also major local participants in the commercial fishing industry within the Plan Area.

As of 1997, Plan Area residents held 113 commercial salmon "A" and "N" licenses and 13 herring spawn-on-kelp "J" licenses. Thirteen additional commercial salmon "F" licenses were held communally by resident First Nations in the Plan Area. These licenses generated an estimated 300 known seasonal jobs, with about two thirds of these in salmon and one third in herring spawn-on-kelp. The majority of license holders live in the northern portion of the Plan Area, specifically in Bella Bella. There are several small processing facilities in the Plan Area, but most of the catch is processed elsewhere.

Due to consolidation within the processing sector, declining prices, declining salmon catch levels, and DFO's fleet reduction program, employment in this industry has fallen significantly in recent years throughout coastal BC. A recent report for the BC Job Protection Commission identified the Central Coast as being within the top 15 impacted areas in the province. First Nations groups within the Plan Area were particularly affected by the reductions. As a result of the continuing decline in populations of some species of BC salmon, on June 19, 1998 the federal Minister of Fisheries and Oceans announced a *Coho Recovery Plan* and the *1998 Salmon Management Plan*. This plan will require highly selective fishing methods and "catch and release" policies for coho specifically. To ease transition, the *Pacific Fisheries Adjustment and Restructuring Program* has committed $400 million to help rebuild the resource, restructure the salmon fishery and assist people and communities to adjust to the dramatic changes that are occurring.

The short term outlook for the salmon industry of the province as a whole and the Plan Area region is generally poor from both a harvest level and price perspective. Conservation concerns for weaker stocks (e.g., coho and chinook) and changes in the ocean environment likely will limit overall salmon catches to relatively low levels for the foreseeable future. Key management concerns for salmon include addressing the common property resource problem and improving selection harvesting.

In addition to salmon and herring spawn-on-kelp, other important fisheries harvested for commercial and sustenance purposes in the Plan Area include clams (the Heiltsuk have a community-based license), crabs, prawns, geoduck, red sea urchins, sea cucumbers, shrimp, scallops, octopus, and numerous types of groundfish. Participation and catch levels for these species has increased significantly in recent years, as harvest levels for salmon have declined.

4.2 Implications of the *Framework Agreement*

The PPAs and Option Areas, if the latter are subject to incremental development constraints, will better protect anadromous (e.g., salmon and steelhead) and freshwater stocks (e.g. trout), which can be significantly affected by resource development on the terrestrial landbase. The *Framework Agreement* would place up to 21% of total watersheds deemed to be sensitive with respect to fisheries values by DFO. The extent of protection is much higher for sensitive watersheds in which there has been no

logging (up to 54% of the GLB, if all Option Areas are protected) or in which there has been no development at all (up to 99% of the GLB). The protection of sensitive watersheds within the forest land base, which is at higher risk due to timber harvesting and related road building activities, is even higher. Up to 71% of unlogged sensitive watersheds and 99% of undeveloped sensitive watersheds within the THLB would be protected by the *Framework Agreement* if all Option Areas are eventually precluded from development.

Protection or Option Areas with a marine component will be important for species such as groundfish, shellfish and herring, particularly if such areas became "no take" zones. Such zones would serve as nurseries for these populations. As these populations migrated outside of PPAs they would help to increase stocks available for commercial use.

However, as with other sectors, it is important to recognize that the land use designations in the *Framework Agreement* are only one factor affecting fisheries populations and fisheries-related economic activity in the Plan Area. For example, global climatic conditions and DFO fisheries management policies are particularly important determinants of fish populations and related economic activity. The common property problem and related over-capacity in some fisheries such as salmon are still not fully resolved and could have significant impacts on future fish populations. Also, a substantial proportion of fisheries-related employment of Plan Area residents is dependent on fish populations outside of the Plan Area, which will not be significantly affected by changes in land use designations proposed in the *Agreement*.

5. AQUACULTURE

5.1 Base Case

The industry is comprised of two sectors: (i) farmed finfish (Atlantic, chinook, and coho)and (ii) farmed shellfish (Pacific oysters, Manila clams, and Japanese scallops), which culture, process, and market finfish and shellfish into a variety of products. The most recent data indicates there are 68 aquaculture tenures involving four companies and one First Nation in the Plan Area. The number of operating sites is somewhat less than the number of tenures for various reasons, including unsuitable locations and standard fallowing practices. Of the actual operations, most produce salmon and several produce shellfish. Only two of the region's aquaculture facilities are located in the northern portion of the Plan Area, although two additional farm applications are pending for relocation from the south to the north coast area. There is also considerable biophysical capability for future potential and the industry has expressed interest in a number of other areas within the Plan Area.

Based on a recent study of the industry[34] it is estimated that almost 50% of provincial, farmed salmon production come from Plan Area operations. Based on this share, Central Coast Plan Area operations are estimated to support an estimated 540 Person-Years (PYs) of employment (or an average of 10 per operation). Most of these jobs are year round, but only about 5% are permanent Plan Area residents.[35] Therefore, most of the income earned by these workers would be spent in mid and northern Vancouver Island communities where the vast majority reside.

Salmon farming production has increased significantly since its beginnings in the 1970's, and in 1998, surpassed the wild salmon catch of 30,200 tonnes for the first time. During this period, there has also been much rationalization in the industry to improve efficiency in the face of lower salmon prices, cost issues, some environmentally inappropriate sites.

Some First Nations have entered joint ventures for salmon farming while others remain opposed to this activity at this time.[36] There are two salmon farms located near Klemtu that is joint ventured between the Kitasoo Nation and industry. Some First Nations are also providing contracted services to certain operations, and discussions are ongoing to broaden their participation in the industry in the Plan Area and elsewhere.

The number of farms peaked in the mid-1990s, after the provincial government declared a moratorium on tenures due to concerns about potential environmental impacts. However, it is important to note that production in the industry has continued to grow despite restrictions on the on number of sites. In 1997, the BC Environmental Assessment Office (EAO) published the *Salmon Aquaculture Review* (SAR), with 49 recommendations primarily aimed at reducing potential negative impacts. The BC government has accepted most of the SAR recommendations, including a cap[37] on the number of existing salmon farm tenures at 121. The Province is also encouraging development of up to 10 new closed-containment pilot projects, 5 of which may be in saltwater and 5 in freshwater.

---

[34] *Socio-economic Impacts of Existing Salmon Farm Operations in BC (Draft):* M. Shaffer & Associates, 1997.

[35] *Unpublished research:* G.S. Gislason & Associates, 1999.

[36] See correspondence of March 23, 2000 from the MTTC/KDC/Tlowitsis. It is also understood that the Heiltsuk are opposed to salmon aquaculture on its traditional lands.

[37] While the gross number of tenures is still 121, some existing tenured operations will be allowed to move to new, currently untenured sites.

The federal Department of Western Economic Diversification recently released a study[38] on the economic potential for shellfish and finfish aquaculture in BC, which concluded that the growth potential is high for both segments of the industry. For shellfish, while the presence of the industry in the Plan Area is currently low, there is the biophysical capability of increasing production by more than 20 times. There is also an additional estimated 6545 ha. of capable deepwater areas. Economic constraints such as limited infrastructure and the distance from population centres, and environmental and recreational conflicts mean that only a part of this potential is likely to be realized and then only over a long period of time.

As for finfish, the study reached similarly optimistic conclusions about market potential and biophysical characteristics of suitable sites, with the key constraint being identified as provincial policy with respect to new tenures. On the biophysical side, information contained in the SAR reinforces the point that the industry has considerable room to expand in BC and the Plan Area (subject to site-specific environmental concerns, conflicts with other users, First Nations interests, etc.). For example, in the Broughton area, the SAR estimates that 11% of its coastline has the biophysical characteristics necessary for aquaculture and factoring in the SAR siting recommendations which would preclude many coastal areas, about 2-3% (3500 ha.) of the Broughton coastline would be available for sites (*Salmon Aquaculture Review*: 1997, Ch. 14) should the existing cap on tenures ever be lifted. There would likely be further netting down of suitable area after site-specific specific factors are taken into account in the application process. However, compared to the total area for all existing 85 salmon farms in BC of about 870 ha, less than 450 ha of which would support existing farms in the Plan Area, it is clear that there is considerable room for salmon aquaculture expansion.

A future viable aquaculture industry in the northern part of the Plan Area has significant additional challenges, primarily because of high transportation costs of feed and moving harvested species to the markets. Subject to solving such issues, most of the local future potential for the industry is likely in the northern part of the Plan Area, since the southern portion (primarily the Broughton area) has been the focus of industry development thus far and is probably subject to the most conflicts with other users (e.g., recreationists and some First Nations). The government's proposed Marine Protected Areas Strategy (MPAs) could also limit aquaculture growth.

There are a number of spawn-on-kelp harvesting (SOK) permits within the Plan Area, with an average harvest of 2-4 tonnes per year. No employment figures are available. Of these SOK permits, only one is held by a non-First Nation person and most, if not all the rest are held by Heiltsuk. MAFF considers the SOK harvest in the Central coast to be near its maximum allowable harvest, but there are still significant opportunities for non-SOK harvests. There is some longer term potential for non-salmonid finfish culture (e.g. for halibut and black cod) in the Plan Area, although the technology for such operations is not as commercially established as for salmon aquaculture in BC.

5.2 Implications of the *Framework Agreement*

The BC Fisheries section of the Ministry of Agriculture, Food and Fisheries (MAFF) undertook an impact assessment of PPAs and Option Areas on existing and potential fin fish and shellfish aquaculture and wild marine plant harvesting in the plan area, all of which are provincially regulated activities.[39]

---

[38] *Economic Potential of the BC Aquaculture Industry (Phase I)*: Coopers & Lybrand, 1998.

[39] *BC Fisheries Socio-Economic Assessment of Implementation of CCRLMP*, Joe Truscott and Josh Anderson, May 17, 2001

Impacts of the *Framework Agreement* on federally regulated sport and commercial marine fisheries are discussed briefly in Sections 3 and 4, respectively.

The actual number of sites available for future development is uncertain, given that resource use conflicts can significantly affect siting opportunities, although such concerns are less serious for shellfish culture. Given the extensive presence of wild marine plants (e.g. spawn-on-kelp) in the plan area, there is likely to be considerable potential for marine plant culture and, therefore, a potential for impacts on future opportunities. However, a detailed impact assessment for marine plants was not possible due to lack of biophysical capability data. Due to poor natural oyster recruitment in the cooler northern waters, there is no existing or potential oyster production and therefore there can be no impact from the plan on wild oyster production.

Although there is little clear direction in the *Framework Agreement* on allowable uses within proposed new PPAs, Plan participants have agreed that the "Protection Areas" are not Class "A"parks, and are therefore likely to be less restrictive in terms of exclusions. The Plan also affirms existing legal rights of First Nations to pursue activities for food, social and ceremonial purposes as well as for some economic gain. Non-First Nations economic activities (other than timber harvesting and mining) may also be allowed if the activities are consistent with the objectives for protection.

There is also a set of Cabinet-approved *Resource and Recreation Use Guidelines for Protected Areas* which recommends the grand-parenting of existing aquaculture and marine plant uses for commercial purposes within new protected areas. As noted above, the Province has also placed a cap on salmon aquaculture, limiting new marine tenures to 5, and only if closed containment technology were employed. For these reasons, there is not likely to be any loss of existing aquaculture tenures or related economic activity resulting from the *Framework Agreement*. However, the assessment does explore the implications of the *Agreement* if these mitigating factors were not in place. The *Agreement* did not provide direction whether the same siting criteria for aquaculture facilities around parks also apply to proposed new PPAs. Direction from LUCO at this time is that these standard spacing requirements would not apply because they are not parks.

For purposes of evaluating potential "worst case" impacts, MAFF estimated the effect of a 1 km marine buffer around coastal terrestrial PPAs, and future potential extension of terrestrial areas of 100m as contiguous Marine PAs, as has occurred for some protected areas in the past. MAFF also estimated the costs of re-locating existing farm sites or retro-fitting installations to meet visual management requirements and estimated the potential, future impacts of foregone new development opportunities within these buffer areas.

Although even in the worst case scenario, existing tenures can be relocated, this would take up sites that could otherwise be occupied by new farms (assuming that the moratorium were lifted) and could affect long term development potential. Also, new sites may not be as desirable as the original location and may cost more to operate due to distance from infrastructure. These costs will depend on site-specific factors that cannot be quantified at this time. The relocation of salmon farms may also affect potential sites for non-salmonid finfish aquaculture, since the siting requirements, for species such as halibut and black cod, are similar to those for salmon. No data is available to quantify these effects.

Using the March 31, 2001 map coverages provided by the Ministry of Environment, Lands and Parks office in Nanaimo and MAFF data on existing tenure locations, hectares and biophysical capability, MAFF undertook a Geographical Information System (GIS) analysis using a 1:2,000,000 scale for estimates of coastline lengths. These lengths would be much larger and more accurate if more detailed scales were used for analysis (i.e., due to more measurable coastal indentations and convolutions).

However, the analysis would have been more difficult, time consuming and would not have yielded substantially different proportions. For detailed calculations and impact analysis of Plan Area polygons, a 1:40,000 scale was used for more accuracy.

GIS analysis was also used to determine the existing tenure areas, as well as the area of good and medium finfish and shellfish capability, that are located inside or within a 1 km of proposed new Protection and Option Areas. However, it should again be noted that these farms would not necessarily have to be moved.

The length of British Columbia's shoreline (at 1: 2,000,000 scale) is 20,320 km, while the shoreline for the central coast is 7100 km (i.e. approximately 35% of the total BC coastline). Of the entire province, prior to the announcement of the *Framework Agreement*, 1,940 km (approximately 10%) of the BC coastline was protected as Parks, Ecological Reserves or Recreation Areas. The new *Framework Agreement* PPAs, would increase the length of coast protected by 1,086 km, to a total of 15% protection for the whole coastline.[40] If all of the Option Areas were to become PAs in the future, an additional 343 km would be protected, further increasing the provincial coastline percentage protected to about 17%.

A summary of existing tenures within or within 1 km of proposed PPAs is presented in Table 5 below and Maps 6(a) – 6(d). The total area of tenures within the proposed Broughton Protection Area is about 95 hectares (7 Stolt Seafarms tenures), and about 14.5 hectares within the Walker Group Protection area (2 Anchor Seafarms tenures). The total hectarage of sites within PPAs and extensions is about 125 hectares. Of the 11 tenures identified, 5 are within PPAs and 6 are within 1 km. Seven of the tenures are currently active, 2 are fallow and 2 are inactive. One of the fallow sites has already been issued a relocation order.

Table 5:
Tenures within 1 km of Proposed Protection Areas

Name	Location	Distance from shore
Anchor Seafarms	Shelter Passage, Wishart Island	75m
Anchor Seafarms	Shelter Passage, Wishart Island	75m
Stolt Sea Farms	North Side, Swanson Island	0m
Stolt Sea Farms	North Side, Swanson Island	0m
Stolt Sea Farms	Larsen Island, Indian Channel	0m
Stolt Sea Farms	Eden Island, Fife Sound	700m
Stolt Sea Farms	Midsummer Island	135m
Stolt Sea Farms	Midsummer Island	135m
Stolt Sea Farms	Bonwick Island, Arrow Passage	0m
Connors Bros. Limited	Burdwood Group, Raleigh Passage	N/A
Nutreca	Sonora Island, Young Passage	120m

There is only one existing tenure potentially affected by proposed Option Areas (i.e., Stolt Seafarms at Watson Cove, about 0.7 hectares). However, this tenure is not inside the Option Area, but within 1 km of the boundary.

[40] The increase in coastline protection attributed to the *Agreement* is somewhat over-stated since it includes the Hakai and Fiordland Rec Areas, which would already restrict or preclude aquaculture activity in the Base Case.

Unlike finfish aquaculture, there is no official 1 km setback for shellfish culture operations within Parks and Ecological Reserves, although historical experience has demonstrated that when Protected Areas are created there is greater resistance to the development of such operations in their vicinity. MAFF's GIS analysis indicated that no existing shellfish tenures are located within or near Proposed PPAs or the Option areas, even taking into account a possible 100 m extension into the adjacent marine area. However, future shellfish culture opportunities could be affected.

Table 6:
Biophysically Capable Aquaculture Areas Potentially Affected by PPA's or Option Areas

Farm Type	Capable Areas	Ha. of Capable Areas within 1 km of Plan Area Coastline	Ha. within 1 km of Existing Parks	% of Plan Area Capability within 1 km of Parks	Ha. in or within 1 km of PPA's * only	% of Plan Area Capability in or within 1 km of PPA's *	Ha. in or within 1 km of OA's only	% of Plan Area Capability in or within 1 km of OA's*
Finfish	Good	16,432	373	2	3,562	22	182	1.1
	Medium	90,800	257	0.3	20,137	19	11,073	12
Shellfish	Good	34,728	479	0.1	3,080	9	829	2.4
	Medium	10,916	503	5	995	9	4,083	40

* PPA = Proposed Protection Area
* OA = Option Area

Table 6 summarizes the area of good and medium finfish and shellfish sites potentially affected by PPAs and Option Areas in the Plan Area. The information in the Table indicates that:

- Up to 22% of good fin fish and 9% of good shellfish culture opportunities on the Central Coast could be foregone if these activities were excluded by PPAs (i.e., if current grand-parenting and siting policies did not apply).
- Up to 1.1% of good fin fish potential and 2.4% of good shellfish potential could be foregone if Option Areas were to become PA's.

There are 12 spawn-on-kelp harvesting permits within the marine component of PPAs in the Plan Area, with an average harvest of 2-4 tonnes per year. No employment figures are available. Of these SOK permits, only 1 is held by a non-First Nation person and most, if not all the rest are held by Heiltsuk. As a result of recent court decisions (i.e., Gladstone) First Nations SOK kelp permits within the plan area PPAs would have to be maintained. No non- SOK marine plant harvest permits occur within PPAs in the Plan Area.

MAFF considers the SOK harvest in the Central coast to be near its maximum allowable harvest, but there are still significant opportunities for non-SOK harvests. Significant non-SOK resources exist in several of the marine components of PPAs. For example, several natural high growth areas are found in existing areas designated for marine Protection, such as the Hakai, Bardswell Group, McMullin Group, Walker Group and Smith Sound. Because of this, the impact of PPAs on future opportunities for marine plant culture could be significant if this activity is excluded from these areas. However, it is not clear whether the management direction for these areas would preclude development. It is clear that development by First Nations could not be legally precluded.

As noted above, it is not clear that existing farms would be required to move if they fell within, or within 1 km of a new PA. However, if required to move as a result of the *Framework Agreement*, MAFF estimated the costs of relocation (based on experience with the current relocation initiative under way as part of the *Salmon Aquaculture Policy Framework*) at $500,000 per site, or potentially up to $5.5 million for the 10 farms affected by PPAs (excluding the farm that has to be moved anyway) and 1 farm potentially affected by Options Areas. The relocation costs are based on both the costs of old site clean-up such as removing anchors etc. and new site costs such as extensive environmental and engineering studies, administration, public hearings, potential employee moving as well as physically moving the farm with the associated re-anchoring. There could also be impacts on employees and their families, who primarily live outside of the Plan Area.

The relocation of 12 farms could also take up new sites that could otherwise support future employment gains of about 80-120 Person-Years of employment. This represents about 10% of all the existing farms on the province. However, these foregone impacts are not an issue as long as the moratorium is in place. Even so, it is more likely that if these impacts were to occur, they would be deferred into the future, since growth in the industry could be sustained on the basis of remaining unutilized sites. There would be no impact on existing shellfish aquaculture sites, of which there are only a few in the plan area at present.

6. MINING AND ENERGY

6.1 Base Case

Minerals

With the exception of some sand/gravel activity near Bella Coola, there are presently no operating mines, significant energy projects, or existing metal mining/energy resident employment in the Plan Area. There are also no current advanced exploration activities, although there have been significant expenditures in the recent past at the former Surf Inlet gold mine and in the Phillips Arm copper-gold belt. There may also be some early exploration activity, primarily undertaken by individuals who reside outside of the Plan Area. There are also minor amounts of sand/gravel and hydro-electricity production occurring. Therefore, current resident mining/energy employment and related personal income is minor.[41] The Ministry of Energy and Mines (MEM) considers the Plan Area to be under-explored and therefore inadequately assessed compared to many other BC areas due to difficult terrain and lack of roads. However, MEM has identified "tracts" of similar geology based on the current understanding of the distribution of mineral deposits and has ranked them with respect to the probability of a mineral deposit discovery. The MEM mineral potential mapping for the Plan Area indicates that most of the potential ranges from low to moderate from a provincial standpoint, with the higher potential areas extending generally from the Kimsquit area south-east to the Klinaklini area.

MEM's "MINFILE" database, reports 144 mineral "occurrences" and MEM staff report an additional 172 non-MINFILE occurrences[42] in the Plan Area. MEM also records past exploration expenditures (about $8.4 million over the 1960-99 period, probably an understatement of actual expenditures). Other MEM mapping done for the LCRMP includes tenure[43] location and mineral potential, which when overlain on the Base Case zones, indicate the following:

- 20.5% of high and 0.3% of very high metallic mineral potential lands, and 4% of showings are included in existing parks and recreation areas, but no, or virtually no other known mineral values.
- 59% of past producing mines, 40% of prospects, 38% of showings, and 20% of mineral claims and titles are within existing VQO zones, where development might be more costly.

Past producing mines can be significant in that they can provide opportunities for further development, e.g., in 1986 a proposal was made to re-activate the Surf Inlet and Pugsley "Past Producers" (gold/silver) mines on Princess Royal Island, employing about 60 workers. Although this did not materialize, there are still plans to re-evaluate the Surf Inlet property. Other relatively significant metallic Past Producers include Doratha Morton (gold/silver) on Loughborough Inlet, Nugent and Alexandria (gold/silver) on Seymour Inlet, and Western Copper (gold/silver/copper) in the Khutze Study Area (i.e., a candidate

---

[41] 1996 labour force data shows no employment in energy or mining, but MEM estimates current employment of about 12, with higher than average incomes.

[42] Mineral occurrences are organized in a hierarchy of significance, from "Showings" (i.e., occurrences of mineralization insufficiently defined to permit resource estimation) to "Developed Prospects" (i.e., occurrences with sufficient mineralization for a numerical estimate of ore grades/tonnages) - the latter category is assumed to have the highest probability of becoming a mine, although "Past Producers" can also become economic again. MEM recently undertook a review of past exploration in the Plan Area and has documented many more areas of activity and former discoveries that are not contained in the MINFILE database. This data was incorporated into this assessment.

[43] Note that except for crown grants and the most promising prospects, mineral tenures are largely transitory and thus only show currently active areas, although they generally tend to reflect mineral potential values.

Protected Area.) Other areas deemed to have significant metallic potential by MEM are the Franklin Glacier area and in the vicinity of the Noosegulch River near Hagensborg.[44]

There are several dozen industrial mineral occurrences (i.e., limestone, clay, magnetite, graphite, clay, asbestos, dimension stone, sand/gravel, etc.) in the Plan Area. Locations where there has been past production include: Koeye River Study Area (limestone), Cunningham Island (limestone), King Island (clay), Matsiu Creek (dimension stone), and Hunter Island (clay) in the Hakai Recreation Area.

In addition to past producers with significant remaining reserves, the subset of mineral occurrences termed "developed prospects" (which also have defined reserves), are assumed to represent the "best chance" for a future mine. MEM identifies two development prospects in the Plan Area. Although the probability and timing of potential development of any mineral occurrence is highly uncertain,[45] the economic impacts of such development, if it does occur, can be substantial. The lack of road access, the absence of a connection to the BC Hydro power grid and low metal prices are currently key obstacles to development in the Plan Area, although these circumstances do not in themselves preclude mineral development and can change over time. Recently, a number of companies have expressed interest in evaluating aggregate and quarry materials in the coastal zone for export to Lower Mainland and U.S. markets. As evidence of this interest, there is a proposed aggregate quarry project near Bella Coola, which has entered the *BC Environmental Assessment* process, and could employ up to 42 direct workers at full production, potentially lasting for many decades.

From a provincial standpoint, mining exploration expenditures in BC have been relatively low throughout most of the 1990s. This is attributable to a number of factors, with crown land use planning being only one. As evidence of this, the recent *Fraser Institute Survey of Mining Companies for 2000/01* concludes that in spite of its relatively high mineral potential (B.C. is ranked 8th of 35 jurisdictions) the policy climate has not been perceived as being supportive to the industry (B.C. is ranked last). According to the survey results, while 93% of the respondents consider "uncertainty regarding new protected areas" as a strong deterrent to exploration investment in B.C. (other strategic land use planning issues are not mentioned, e.g. "Special Management Zones"), 90% also cite "land claims uncertainty". Other factors cited include uncertainty in the administration, enforcement, and interpretation of regulations, taxation, and regulatory duplication as additional strong deterrents.[46]

Energy

The primary source of energy locally is electric power supplied by stand-alone hydro and diesel generators, since the Plan Area is not connected to the BC Hydro grid. Small scale hydro sources include Clayton Falls hydroelectric generating station near Bella Coola and the Central Coast Power Corporation facility at Ocean Falls. Small diesel plants are located in several communities in the Plan Area, including

---

[44] Most of this information is excerpted from *A Preliminary Assessment of the Mineral and Energy Resources of the Central Coast Region, BC*: R. Pinsent, Ministry of Energy and Mines, 1998.

[45] According to MEM, there are about 12,000 mineral occurrences in BC, of which almost 10,000 are metallic. Of these metallic occurrences, 6 of 119 developed precious metal prospects and 8 of 233 developed base metal prospects are current operating mines. In addition, over 1500 metallic occurrences were past producing mines, although the vast majority would have been quite small employers since the technology for large open pit mining has only be available and/or economic since approximately the 1960s. This data provides some indication of the low probability of mineral occurrences proceeding to development during a period of several decades.

[46] See www.fraserinstitute.ca website. MEM estimates that exploration expenditures in BC may double in 2001 based on data for the first part of the year, another indication of the importance of factors other than crown land use planning initiatives.

Bella Coola, Bella Bella and Klemtu. Large scale hydro-electric development in the Plan Area is constrained by the area's small population, distance to BC Hydro's grid, and the environmental impacts that could result from such an interconnection. However, there are a number of identified river systems throughout the Central Coast area that have the capability for small scale, local electricity production. In addition, the Ocean Falls plant has excess electrical capability of about 10 MW.

The Geological Survey of Canada has identified three areas of high geothermal potential in the Plan Area with characteristics of possible commercial interest, and in which known hotsprings occur: one covering the Kelkane hotspring (on the mainland, opposite Princess Royal Island); one covering the Eucott and Nascall hotsprings (in the Dean/Burke Channel area west of Bella Coola), and one on Swindle Island. The Tallheo springs (adjacent to South Bentinck Arm) may also be of interest. Although development of these geothermal sources is severely limited by lack of access to the interconnected grid, they could have possibilities for local energy production, tourism and process uses (e.g. for kilns or greenhouses).

There are no petroleum-related activities in the Plan Area, and most of the terrestrial portion of the Plan Area has low potential. The Suquash sedimentary basin off northeastern Vancouver Island is estimated to contain about 60 Bcf of coal-bed methane and natural gas potential. Part of this basin may be accessible from Malcolm Island or other locations within the Plan Area. There is considerable potential for extraction of oil and natural gas off of the Central Coast in Queen Charlotte Sound and Hecate Strait, but these resources are located outside the Plan Area, and there is currently a government moratorium on off-shore exploration and development. Recently, the Province has been undertaking consultations on the issue through the office of the Northern Development Commissioner. If the offshore exploration moratorium were lifted, there could be some economic benefits for Plan Area residents depending on how the resource was developed, and the sourcing of labour and services in smaller, coastal communities.

As for oil and gas, exploration and development has been strong in BC's northeast for several years and is expected to continue, driven by strong market demand and high prices. This record of strong historical growth, which occurred in spite of the same factors cited in the *Fraser Institute* survey, indicates that resource industry activity in BC is strongly correlated with international markets and prices.

6.2 Implications of the *Framework Agreement*

Minerals

With respect to minerals, as noted above, it is assumed in this assessment that the probability of development is highest for developed prospects and for past producers which still have substantial reserves. The probability of development is assumed to be lower for prospects, showings and extreme / high mineral potential, in that order.[47] Similarly, the probability of development is considered to be higher if sufficient investment has been made to estimate oil and gas reserves. Due to uncertainty regarding the extent to which the probability of mineral and energy development is affected compared to the Base Case, economic impacts are quantified only for resources for which reserves are estimated. This assessment is based in part on an evaluation undertaken by MEM.[48]

---

[47] This "hierarchy of probabilities" is a very broad generalization subject to unexpected mineral finds. Also, mineral exploration tends to be concentrated near areas in which discoveries and development have already occurred. Therefore, the significance of known mineral occurrences may be that development is more probable within the vicinity, rather than at the occurrence itself.

[48] *Draft Preliminary Assessment of Mineral and Energy Resource Impacts Associated with April 4, 2001 Interim Land Use Plan Decision*, R. Schmitt, M. Finvers, et al, May 23, 2001.

PPAs in the *Framework Agreement* do not preclude any developed prospects in Plan Area and only one prospect is alienated. The proposed aggregate quarry near Bella Coola is adjacent to a Goal 2 PPA for the estuary. Although it is not directly affected by the PPA, some permitting decisions for the quarry could be complicated by this proximity. PPAs would preclude 6 (24% of) past producers, all of which contain documented reserves. The most important of these past producers are the former Surf Inlet gold/silver camp on Princess Royal Island and the Western Copper and Hunter (gold/silver/copper) deposits in the Khutze River Valley, which historically account for millions of dollars in exploration and development investments, and are being actively explored. The Surf Inlet property could potentially employ about 60 workers for several years, if a recently proposed re-evaluation of the property were to prove it viable.

PPAs would preclude an additional 20% of very high mineral potential and 18% of showings in the Plan Area. PPAs would also preclude about 12.6% of the number, and 5.8% of the area of mineral tenures (metallic and non-metallic), and 74% of the number, and 70% of the area of Crown-granted mineral claims in the Plan Area (the bulk of which are located near the Surf Inlet and Western Copper and Hunter past producers).[49] A number of compensation claims would likely arise from the *Framework Agreement* (see Appendix E). Proposed PAs also include areas accounting for almost 18% of exploration expenditures in the Plan Area over the 1960-99 period (again primarily accounted for by past producers such as Surf Inlet and Khutze River Valley). Some of the specific impacts of PPAs not already discussed above, are summarized below:

- Spirit Bear PPA on Princess Royal Island includes all mineral tenures at the Barnard black granite deposit.
- Kliniklini candidate protection area (recommended ELU Act designation) could create access barrier to the interior of the Plan Area. Past experience with Recreation Areas suggests mineral exploration will be constrained by the inherent uncertainty in this type of designation, despite the 15 year exploration "window of opportunity" prior to final designation.
- Surface access to the Colussus molybdenum-copper prospect straddling the northern boundary of the Estero Basin PPA could be constrained depending on the final configuration of the PPA.
- Large numbers of goal 2 estuary PPAs may constrain surface-based access to some watersheds.

The proposed Option Areas do not overlay any developed prospects or prospects in the Plan Area. As noted above, it is unlikely that all Option Areas will become PAs. However, if Option Areas were to become PAs, they could preclude an additional 23% of very high metallic mineral potential, 1 (4% of) past producer, 9% of MINFILE showings, and 1% of the number of mineral tenures in the Plan Area. Option Areas accounted for less than 1% of exploration expenditures in the Plan Area over the 1960-99 period. First Nation Lead Areas overlay only 1 non-MINFILE showing and 0.3% of mineral tenures, and are not likely to become PAs. Due to uncertainty regarding the ultimate designation of Option and First Nations Lead Areas in the *Framework Agreement*, this will likely prevent exploration investment in these areas until designations are finalized. See Map 7 for a visual representation of these geologic values vis-à-vis the *Framework Agreement*.

While VQOs in the Base Case already cover a significant proportion of mineral occurrences, the *Framework Agreement* places an even higher proportion of the land base in Special Management Zones (SMZs), to be managed for visual quality. The new SMZ zones do not appear to affect any developed prospects. However, newly proposed SMZs, as mapped, include an additional 29% of prospects, 28% of

[49] Although these Crown-granted mineral claims are some of the oldest in BC, the work requirements and very low cost of holding Crown-granted claims (about $5 per hectare / year) means that they can be retained for decades without significant exploration investment. Despite this, thousands of such claims, which are no longer issued, have been forfeited over the past decade. Dennis Lieutard, MEM, *pers. comm.*

past producing mines, 10% of showings, 29% of the number of mineral tenures and 22% of the number of Crown-granted claims, where visual quality constraints may apply. These potential impact estimates are likely overstated since only a portion of the SMZs (in many cases, where VQO constraints already exist) would actually be affected by a new VQO designation. Nevertheless, it is possible that the new VQOs in the *Framework Agreement* could increase mineral development costs in these areas.

Energy

There is no GIS information on geothermal or hydro-electric resources. The likelihood of large scale development is low in the Base Case due to the remoteness of the area from the grid and existing population centres. In any event, BC Hydro indicates that the *Framework Agreement* does not preclude any planned development.[50] The PAs in the *Framework Agreement* may preclude sources that may be suitable as local energy supplies. For example, it appears that a significant proportion of high geothermal potential in the Plan Area is covered by PAs and Option Areas. However, these energy sources would only be economic if located in close proximity to communities, most of which (including the surrounding area) are not included in such designations. Small scale geothermal and hydro resources are more likely to be developed as part of tourism developments such as lodges, but it is possible that small scale developments could be permitted if they supported uses that were consistent with the management strategy for the particular PPA.

As noted above, most of the Plan Area has very low oil and gas energy potential, with the exception of some coal-bed methane potential in the Suquash Basin in the southwest of the Plan Area. The costs of development are a significant obstacle to development of this resource in the foreseeable future and there are more accessible supplies of coal-bed methane on Vancouver Island. It does not appear that the *Framework Agreement* will significantly affect future exploration and development opportunities for coal-bed methane, although new PPAs and SMZs bordering the Queen Charlotte Strait would require such activities to be carried out more sensitively.

Conclusions regarding Mining/Energy Implications of Framework Agreement

In summary, the most significant impact of the *Agreement* would be to preclude development of the Surf Inlet gold deposit (60 potential jobs) and the Barnard Harbour black granite deposit. However, the likelihood and timing, and therefore the economic significance of these potential developments, is very uncertain. The *Agreement* would not directly affect the proposed Bella Coola aggregate quarry, but the adjacent estuary PPA could complicate future permitting decisions. The large number of mineral tenures precluded by the *Agreement* will likely result in a number of compensation claims. In general, the mineral potential in the Plan Area is considered to be low relative to other areas of the Province. However, the PPAs in the *Agreement* would preclude about one-fifth of the 13% of the Plan Area that has very high mineral potential. In the unlikely event that all Option Areas became PAs, up to two-fifths of very high mineral potential in the Plan Area would be precluded. It is also possible that the cost of exploration and development may be increased by the SMZs in the *Agreement*. In fact, the unresolved nature of the LCRMP and of eco-system based management, would likely result in reduced investment in mineral exploration, at least in the short term. However, any evaluation of the economic significance of these impacts must also take into account the probability and timing of project development, which is already constrained by lack of access to infrastructure such as roads and the interconnected grid, and other Base Case factors such as unresolved aboriginal land claims. The completion of a consensus land use plan should reduce one element of investment uncertainty in the Central Coast Plan Area.

---

[50] Gary Holisko, BC Hydro, *pers. comm.*: May 2001.

7. Agriculture

7.1 Base Case

As of 1996, there were 30 farms on 2,810 hectares, an increase from the 1991 total of 18 farms.[51] Of the 30 farms, 11 are classified as "Miscellaneous Specialty," five are "Beef Cattle," and three are "Field Crops." In 1996, agriculture accounted for about 1% of personal income in the Plan Area. While the soil in the Plan Area is generally not suited for agriculture, a small amount of farm land exists within the Bella Coola Valley. Over 4,400 hectares of land in the Central Coast Regional District (roughly consistent with the northern portion of the Plan Area) is within the Agricultural Land Reserve (ALR), according to Agricultural Land Commission staff. With the development of the road linkage to Williams Lake in 1953, food imports have displaced local agricultural production. However, more recent Census labor force trends indicate an increase in local farming jobs from 5 in 1991 to 40 in 1996.
There is potential for growth in organic farming and market gardening in the Bella Coola Valley, since the area has not been significantly affected by industrial or urban development and much of the agricultural land has been fallow for over 30 years. For example, a successful local farmer's market has developed over the past few years.

There are very few range tenures within the Plan Area. According to MoF, there are six grazing permits that cover approximately 2,146 ha surrounding the Bella Coola Valley. There are no other grazing permits/licenses or hay cutting permits/licenses issued for the remainder of the Plan Area.

While limited growth may continue, market and cost factors, and the location/soils of the Plan Area make it unlikely that agriculture will be a significant contributor of local jobs in the future. Over the past five years, the number of grazing permits in the Plan Area has not changed and it seems likely that this stability will continue. In the future, greater emphasis will be placed on the integrated use of range, but unlike some other regions of the province, range conflicts with other values are minimal.

7.2 Implications of the *Framework Agreement*

Most of the agricultural land and grazing permits are in or around communities in the Plan Area, particularly the Bella Coola valley. Since virtually all of these areas are not covered by any of the designations, the *Framework Agreement* has no significant implications for agriculture. The constraints and growth opportunities with the *Agreement* are essentially the same as in the Base Case.

---

[51] *Census of Agriculture Statistics for Regional Districts in BC - 1991 & 1996*: Ministry of Agriculture and Food, 1997.

8. Botanical Forest Products and Trapping[52]

8.1 Base Case

Botanical forest products (e.g., edible and medical plants) have received growing attention from a commercial standpoint as their value and market potential have increased. Marketable forest products found in the Plan Area include pine mushrooms, western yew bark, cedar oil, morel and chanterelle mushrooms, floral greenery, and various botanical medical items. One entrepreneur is currently manufacturing marketing medicinal ointments to destinations outside of the Plan Area. Many botanicals also have a special cultural and/or spiritual significance to First Nations.

The most well-known commercial botanical product in the Plan Area is the pine mushroom, which is mostly exported to Japan. Pine mushrooms are generally found in the Bella Coola-Dean River-Tweedsmuir Park areas (although mushroom harvesting is not officially allowed in Parks or Recreation Areas), North and South Bentinck, and Oweekeno Lake and usually occur in older forests of 100 to 200 years. Pine mushroom picking is a source of seasonal income for many residents in the Central Coast, as well as some non-residents. In 1999 there was an estimated 100 tonnes of pine mushrooms shipped out to Japan from the Plan Area[53] but no published economic statistics are available.

Wild berry picking also provides some local seasonal incomes. The most well known of such native plants are wild blueberries, blackberries, and strawberries and have historically been a part of First Nation diets.

The traditional and commercial harvesting of botanical forest products raises many issues, such as ecosystem sustainability, land use conflicts, allocation of the resources among users, government revenue collection, complexity of administration, and illegal harvesting in parks. There is currently no provincial policy covering botanical forest products, although MoF has been studying the issue for several years.

There are specific concerns over potentially decreasing future pine mushroom yields due to the rates of clear-cut timber harvesting in the Plan Area. The research indicates that the species tends to prosper under more selective harvesting regimes, but not necessarily always in closed-canopy forests. Based on input from MoF, it is assumed in the mapping analysis that pine mushroom growth tends to occur mainly in the Coastal Western Hemlock (CWH) biogeoclimatic zone variants within dry fir/pine leading stands. Without more information as to the specific management requirements of pine mushrooms, future trends are difficult to analyze, but two basic observations can be made:

- According to the *Mid Coast TSA Timber Supply Review* (June, 1999), in 100 years, virtually all of the THLB will contain stands less than 120 years old, which could reduce mushroom potential.
- On the other hand, about 19,500 ha or 72% of the dry fir/pine CWH variant is in "Forested Exclusions" (i.e., areas outside of the THLB but with forest cover), which may contain appropriate pine mushroom growing sites.

---

[52] These sectors are combined since they are both small commercially & have similar nature-based interests.
[53] Pacific Coastal Airlines staff: January 2000, *pers. comm.*

The market for mushrooms and other botanical products is likely to continue growing, and a recent independent study concluded there are major economic opportunities in BC for increased botanical forest products exports.[54] However, some opportunities could be foregone by the lack of appropriate forest management policy and other regulatory controls.

Trapping is undertaken in the Plan Area primarily by First Nations, for both cultural and economic purposes. While trapping is not a large component of the Plan Area economy (statistics on trapping's contribution are not available[55]) it is a part-time supplement to other income sources for many aboriginals. The most prevalent species trapped are Marten, Beaver, Muskrat, and Mink. Although much trapping activity goes unreported, it appears that harvests of Marten and Mink have declined quite dramatically in past years, although this may be due to market factors rather than declining populations. However, the reliance of species like marten on older forests, and the likely decline in these forests over time, indicates that furbearer populations and related trapping activity.

8.2 Implications of the *Framework Agreement*

The *Framework Agreement* increases the proportion of the dry fir / pine CWH variant in PPAs and in SMZs (from a total of about 44% to 57%), which should better protect at least some botanicals, particularly pine mushrooms which are the most important commercial species. The economic implications of the *Agreement* depend in part on the management direction in new PPAs, since commercial harvesting of any botanical is illegal in existing parks and ecological reserves. However, management in PPAs is intended to be more flexible with respect to economic activities than Class A parks (as long as such activities do not conflict with the management objectives of the area).

However, it should be noted that the large proportion of the Plan Area is in forested exclusions outside the THLB that may contain appropriate habitat for botanicals, and which will not be affected significantly by the *Framework Agreement*. Finally, the lack of a regulatory and policy framework will continue to place at risk the economic potential for botanicals.

The *Framework Agreement* will also increase protection for furbearers and related trapping activity. For example, the *Agreement* approximately doubles the area of old growth and mature timber in PPAs, with additional protection in SMZs, Option and First Nations Lead Areas. This will be more supportive than the Base Case for populations of most important trapped species. The economic implications of this increased protection depends in part on allowable activities, particularly in PPAs. However, even if commercial trapping within PPAs is precluded (which is dependent on management strategies yet to be developed), such areas can help replenish populations and therefore support increased trapping activity outside of PPAs. Therefore, overall, the *Framework Agreement* should increase trapping activity compared to the Base Case. However, other factors, such as the extensive forested exclusions in mature and old growth forests and market trends will continue to be important factors regardless of the proposed designations in the *Agreement*.

---

[54] *An Economic Strategy to Develop Non-Timber Forest Products and Services in BC*: R. Wills & R. Lipsey, FRBC Project No. PA97538-ORE, March 1999.

[55] In the southern portion, there are over 90 traplines, and about one-third are classified as being "active," with most of the rest being held by aboriginals and classified as being "inactive" or "non-reporting."

9. Community / First Nations Concerns

9.1 Base Case

As of the 1996 Census, the population of the vast Central Coast Plan Area was a relatively low 4,611. None of the communities in the Plan Area are incorporated municipalities. The main population centres are in the Bella Coola valley (i.e, the Bella Coola, Hagensborg, Firvale, and Stuie areas) where about 2400 aboriginal and non-aboriginal residents reside and in Waglisla (Bella Bella) where there are about 1200 on-reserve Heiltsuk inhabitants. There were some population declines in the Plan Area in the 1960s and 1970s due in large part to the number of individuals who left Ocean Falls after the closing of its pulp mill. From 1986-96, however, the population of the Plan Area grew strongly due to a number of factors, including the in-migration of residents and a relatively high birth rate, although economic challenges since 1996 have slowed growth considerably.

An estimated 2,455, or 53% of the 4,611 resident population in 1996 were members of First Nations living on-reserve in the Plan Area. There are nine First Nations with residents in the Plan Area, four in the northern portion and five in the southern portion, including the following: the Heiltsuk (Bella Bella), Kitasoo (Klemtu), Nuxalk (Bella Coola), Oweekeno (Rivers Inlet), Kwicksutaineuk (Gilford Island), Tsawataineuk (Kingcome Inlet), Kwa-Wa-Aineuk (Hopetown), Da'naxda'xw and the Tlatlasikwala (currently "repatriating" their communities at New Vancouver and Hope Island respectively).[56]

There are also a number of First Nations whose members now reside primarily outside, but have traditional territories within, the Plan Area. These First Nations include members of the Kwakiutl District Council (KDC), the Musgamagw-Tsawataineuk Tribal Council (MTTC), the Gitga'at (Hartley Bay), the Homalco, the Tlowitsis-Mumtagila, and the Haisla. While relatively low numbers of KDC/MTTC currently live in the Plan Area, many of those residing outside, mainly on northern Vancouver Island, have a strong attachment to these lands. In some cases, First Nations (e.g., the Gwa-Sala-Nakwaxda'xa in the 1960s) were in fact relocated by the federal government from the Plan Area to Vancouver Island. Total resident and non-resident First Nations population with traditional territory in the Plan Area is reported to total over 10,000.

Unemployment in the Plan Area and on north / mid-Vancouver Island, the latter being economically linked to Plan Area resources, is much higher than the provincial average. Within the Plan Area, the Bella Coola Valley has been facing particularly difficult economic circumstances and significant social stress. Indicators of crime, health, education and children at risk suggest a much lower quality of life for residents compared to the rest of the province. The Health Goals Regional Index for 1999 prepared by the Provincial Health Officer ranks the Cariboo Health region – which includes the Bella Coola Valley – as the lowest overall in the province. This region has the highest rate for potential years of life lost, low rates of post-secondary education and high rates of children and youth in care.

Communities in the north and mid-Vancouver Island North areas, which have some strong socio-economic linkages to the Plan Area as noted earlier, currently face a slightly greater degree of socio-economic stress than many other areas of the province. However, these areas are generally better off from a socio-economic perspective than communities in the Bella Coola Valley.
Unemployment among First Nations residents within the Plan Area is much higher than in the non-aboriginal community. The available data indicates that unemployment exceeds 50% in most of the Plan

[56] The profiles provided in this section are based, in part, on information obtained from Indian and Northern Affairs Canada.

Area's First Nations communities, a situation that has been described by one First Nation as "desperate." A survey undertaken for the *Base Case* report (MEI et. al., 2000) indicates that improving economic opportunities, gaining more control over land and resource management, securing greater benefits from resources which are being exported, and protecting important nature-based values (e.g., wild fisheries, hunting opportunities, botanical forest products, etc.) are the highest priorities for those First Nations involved in the LCRMP. Within the LCRMP process, First Nations have also emphasized protection of cultural resources (e.g. archaeological sites, cultural / traditional use areas).

Another key concern to local First Nations is the settlement of land claims. Several First Nations with interests in the Plan Area are involved in treaty negotiations with the BC and federal governments: the Heiltsuk Tribal Council, the Oweekeno Nation, the Haisla, the Gitga'at, Kitasoo, the Homalco, and the KDC. The treaty process is comprised of six stages and none of the negotiations are past the "Agreement in Principle" stage, which is the most complex and time-consuming part of the process.

Treaty settlements will ultimately impact land use and the local/provincial economy in the Base Case regardless of the LCRMP). These will likely benefit the Plan Area economy and result in greater self-sufficiency for local First Nations due to financial inflows, improved investor certainty, and improved aboriginal / non-aboriginal business relationships. However, there could also be a redistribution of resource benefits from some non-aboriginals (mostly living outside the Plan Area). Treaty settlements and the 1997 Delgamuukw ruling by the Supreme Court of Canada are also likely to provide a greater role for First Nations in "on the ground" resource management (e.g., timber lands) in the Plan Area.[57]

9.2 Implications of the *Framework Agreement*

Overall Community Concerns

The *Framework Agreement* has implications for aboriginal and non-aboriginal communities on two levels. On one level, the impact of the *Agreement* will be felt through the impacts on overall amounts of activity in various resource sectors, by aboriginals and non-aboriginals alike. On another level, the *Agreement* has the potential to increase the share of benefits, and reduce the environmental and other impacts of resource development on First Nations within the Plan Area.

Any employment loss additional to that already occurring in the Base Case, with associated relocation of workers and other related impacts, would place additional stress on individuals and families potentially leading to depression, family violence and substance abuse. The socio-economic circumstances of communities in the Plan Area, and to a lesser extent, in north and mid-Vancouver Island, mean that these areas do not have the same capacity to cope with the loss of resource opportunities as other more economically diverse and socially stable areas of the province. However, the significance of potential employment impacts from a community perspective, will depend on their importance relative to the size of the community labour force, and the potential for redistribution of resource benefits and the compensation / transition funding mechanism to be established as a result of the *Framework Agreement*.

A survey of major forest licensees undertaken for the *Base Case* report (MEI et. al., 2000), provides a breakdown of the regional distribution of harvesting and sawmilling employment dependent on Plan Area timber harvests. This distribution was then weighted by the estimated harvest impacts of the *Framework Agreement* for each management unit and licensee (including adjustments for the under-harvest situation). Consistent with Table 7, this analysis indicates that only 5% of the direct forestry job impacts

[57] This discussion is summarized from *A Lay Person's Guide to Delgamuukw*: BC Treaty Commission Annual Report, 1997-98.

on permanent employment (about 5 jobs) associated with the *Framework Agreement* PPAs and SMZs would occur in the Plan Area, about 6% on north Vancouver Island (6 jobs), and 19% in mid-Vancouver Island (19 jobs). About two-thirds of direct employment impacts (about 65 jobs) would occur in southern Vancouver Island and the Lower Mainland due to the number of woodlands employees who permanently reside there and because most of the Plan Area timber is exported to these areas for milling.

Table 7:

Regional Distribution of First Decade Forestry-Related Permanent Job Impacts[a] of Base Case and Central Coast LCRMP *Framework Agreement*

Region	Base Case (without *Agreement*)	*Framework Agreement* PPAs / SMZs	Total
Central Coast Plan Area			
Direct (PYs/yr)	10	5	16
Total (PYs/yr)	13	7	20
% of Total Plan Area Employment	0.64%	0.33%	0.97%
North Coast			
Direct (PYs/yr)	6	2	8
Total (PYs/yr)	8	3	11
% of Total North Coast Employment	0.08%	0.03%	0.11%
Northern Vancouver Island			
Direct (PYs/yr)	15	6	21
Total (PYs/yr)	20	8	28
% of Total Northern VI Employment	0.24%	0.10%	0.34%
Mid-Vancouver Island			
Direct (PYs/yr)	87	19	106
Total (PYs/yr)	118	26	144
% of Total Mid-VI Employment	0.25%	0.06%	0.31%
Southern VI / Lower Mainland			
Direct (PYs/yr)	202	67	269
Total (PYs/yr)[b]	529	170	699
% of Total SVI/LM Employment	0.04%	0.01%	0.05%

(a) Distribution of direct forest employment impacts based on employment survey of licensees in *Socio-Economic Base Case* (MEI et. al., 2001). Indirect/induced effects based on Forest District multipliers by Ministry of Finance and Corporate Relations.
(b) Estimated as total direct, indirect and induced provincial impacts less impacts in all other regions. This takes into account the "leakage" of expenditures from rural areas to southern Vancouver Island / Lower Mainland.

When indirect/induced job impacts are taken into account (resulting from inter-industry and worker spending effects), the proportion occurring in the southern Vancouver Island and the Lower Mainland increases to about 80% because of larger multipliers in those areas, i.e., lower spending leakages vs. the less populated areas. Thus, taking into account direct and multiplier effects, the loss of existing jobs due to PPAs and SMZs in the *Agreement* result in a very minor impact on Plan Area (about 0.3% of total 1996 employment) and north and mid-Vancouver Island economies (less than 0.1% of total employment). Even if all Option Areas became PA's (unlikely), and no adjustments were made for the under-harvest situation, total forestry-related job impacts of the *Agreement* would comprise a very small proportion of total employment in the Plan Area and linked Vancouver Island communities (e.g., about 1.4% of total Plan Area employment, 0.4% of northern Vancouver Island and 0.2% of mid Vancouver Island).

Thus while the potential job impacts of the *Agreement* could create severe hardship for some workers and their families if they are not mitigated/compensated, these impacts would not on their own result in major socio-economic disruption in affected communities. There are also employment impacts that will occur as a result of Base Case factors (e.g., harvest "fall-down" as per the MoF *Timber Supply Reviews*). These impacts, included in Table 7, are larger than the incremental impacts attributed to the *Agreement*. However, while the absolute number of workers affected by both the *Agreement* and Base Case factors (particularly in the mid-Vancouver Island region, where over 100 forestry workers could be affected) are significant, they still comprise a minor proportion of overall jobs in the affected communities.

As for the estimated 315 forestry job temporary "operational impacts" that could be incurred as harvesting is moved to alternative sites, assuming the same regional distribution as permanent impacts due to PAs and SMZs, about 5% of potential, temporary employment impacts (~17 direct jobs), would occur in the Plan Area, 6% (~20 jobs) in northern Vancouver Island, 2% (~8 jobs) on the North Coast, 19% (~60 jobs) in mid-Vancouver Island, and 67% (~210 jobs) in southern Vancouver Island / Lower Mainland. Since the analysis has indicated that there is several years worth of mature timber available, the size and duration of these impacts are very much influenced by the economics of timber harvesting in the Plan Area, which have been already noted to be currently unfavourable.

The impacts of the *Agreement* on aquaculture and mineral exploration and development would take the form of foregone opportunities rather than loss of existing jobs. In the short term, until the provisions of the *Agreement* are clarified, it will create further investor uncertainty, but over the longer term, there are still significant opportunities for growth in these sectors. The PPAs and SMZs resulting from the *Framework Agreement* will generally provide greater support for the tourism sector in the Plan Area, as well as for commercial fisheries, botanicals (e.g., pine mushrooms) and trapping. The employment and income gains in these activities would occur gradually, over time.

First Nations Concerns

One of the constraints on local First Nations economic development has been their lack participation in the forest industry.[58] In general, the *Agreement* will reinforce the trend towards greater First Nations involvement in the benefits of resource development resulting from eventual Treaty settlements and legal precedents such as the 1997 Delgamuukw ruling by the Supreme Court of Canada. The provisions in the *Agreement* which call for more consultation, referrals, and formal protocols with First Nations would also provide a considerably greater role for First Nations in resource development in the Plan Area. Even a relatively small redistribution of harvesting rights to local communities or First Nations in the Plan Area would more than offset the estimated job losses due to harvest reductions resulting from the *Agreement*. For example, if all First Nations Lead Areas and half of the Option Areas became operating areas under local control, this would make available almost 50,000 m3/yr, based on MoF estimates of incremental, short term harvest impacts associated with these areas, and discounting by half to take into account more environmentally sensitive harvesting and the implications of smaller, more fragmented management units. Harvesting employment alone for this volume (about 20 jobs) would be 4 times that of the direct employment impacts in the Plan Area of PPAs and SMZs in the *Agreement*.

The *Agreement* will provide more protection for First Nations traditional resources and activities (e.g., subsistence fishing and hunting) in new PPAs, and likely in the Option and First Nations Lead Areas and SMZs. Its provisions for First Nations involvement in resource management, particularly in Option and First Nations Lead Areas, could increase the opportunities and incentives for initiating joint ventures

[58] This situation appears to be gradually changing as a result of joint ventures with and increased employment by forest licensees of local First Nations personnel.

with First Nations in sectors such as forestry, aquaculture, and tourism. In general, the consultation provisions of the *Agreement* will better ensure that aboriginal rights and/or title are not unjustifiably infringed upon by resource development. Such provisions reinforce the existing protocols between the Province and First Nations and increase the likelihood that the benefits and costs of future resource development will likely be shared more equitably between aboriginals and non-aboriginals.

In very general terms, the land use changes, consultation protocols, and management strategies proposed in the Plan, appear to be more consistent with the economic development and resource development vision of First Nations groups in the Plan Area, and may help reduce eventual conflicts between treaty and land use planning. However, some First Nations have expressed concerns that the process for determining the nature of eco-system based management will not have adequate local representation[59] and that economic development and/or subsistence opportunities might be precluded, especially in PPAs. These concerns are heightened by the fact that allowable uses and potential co-management regimes have not been finalized. For example, the Oweekeno Nation have expressed concerns[60] that some designations in the *Framework Agreement* may negatively affect its economic development plans, in particular a forest license recently awarded in their territory and potential contracting agreements with Western Forest Products and Interfor. However, it is quite possible that this particular forest license area (Doos Creek First Nation Lead Area) will remain open for resource development under an eco-system based management regime with Oweekeno involvement. The Nuxalk may also have concerns about the extent of land that would be precluded from development in the Hotsprings / No Name PPA, and there may be disagreements among different First Nations as to the recommended PPA designation for Hanson Island.

It is also understood that various First Nations groups have active economic interests or plans (in some cases with forest licensees) in a number of other Option and First Nation Lead Areas, which increases the likelihood that these areas will remain open or partly open for some resource development, including:

- Ingram / Mooto, Clatse / Walker Lake, Namu / Draney (Heiltsuk First Nation Lead Areas)
- Cascade/Jump Across Option Areas (Nuxalk)
- Dallery watershed in Piper-Sandell Option Areas (Oweekeno)
- Piper / Nekite watershed in Piper/Sandel Option Area(Oweekeno)
- Kwatse / Bond Sound Option Areas (KDC)
- Fog/Green (Nuxalk Frest Nation Lead Area on King Island)
- Other Option Areas found in the Gitga'at (Hartley Bay) and the Kitasoo territories around Princess Royal Island and the adjacent mainland

As discussed in the tourism section, the Heiltsuk have had long standing concerns about the management of the Hakai Recreation Area. While allowable uses in this PPA (now under a Conservation Study Area *Order-in-Council*) are not specified in the *Framework Agreement*, it is understood that the OIC may well be a first step to some sort of "co-management" arrangement. If such an arrangement were reached, it could allow more flexibility for Heiltsuk subsistence and other economic uses (possibly even some logging) than has been the case under the Recreation Area regime. This would also suggest greater flexibility, in general, for First Nations use of PPA's identified through the LCRMP process. Finally, it should also be noted that the Kitasoo have indicated their support for the Spirit Bear PA on Princess Royal Island, the Khutze River PA, the Mussel / Kynoch (Fiordland #8) PA and the Pooley Island PA.

---

[59] E-Mail from Norman Dale to Alex Grzybowski, May 2001.
[60] Letter from Oweekeno Chief Councillor to Land Use Coordination Office, May 3, 2001.

APPENDIX A: Terms of Reference

The contractor will undertake an independent, objective, and balanced socio-economic & environmental "multiple accounts" impact assessment of the Central Coast LRMP's "*Phase I Framework Agreement*" (March 2001), adhering as closely as possible to the principles outlined in the Province's publication, *Social and Economic Impact Assessment for LRMP in BC - Interim Guidelines (1993).* The nature /significance of the impacts will be assessed as follows:

1. Undertake the socio-economic and environmental assessment of the *Framework Agreement* vs. the Base Case (the latter exists as a completed report, but may have to be augmented with information on events that have transpired since publication and/or potentially new demographic data made available by government) land management regime, with presentation in a multiple accounts format, including a summary matrix and a textual executive summary to highlight the key impacts and trade-offs.

2. Given the preliminary nature of the *Framework Agreement,* Phase I should be considered to be a "scenario" and not a final package. Also, defensible assumptions on several key issues will have to be made – these should be checked with appropriate members of the Interagency Planning Team (IPT) or other agency staff as appropriate.

3. Devote primary attention to those values most closely linked with changes to Crown land use. The accounts should include those for the economic sectors (i.e., forestry, mining/energy, aquaculture, and tourism with jobs/incomes being the key economic indicators), communities (i.e., risk of significant job/population changes in areas affected by the LRMP), first nations (i.e., economic activities as well as traditional and sustenance activities), environmental values (i.e., ecosystem representation, biodiversity, wildlife, and fisheries), and provincial government finances (quantified revenue impacts likely to be done for timber only, due to the uncertainties associated with the biophysical impacts for the other sectors.)

4. Utilize government-provided GIS area statistics in the assessment, with these statistics being presented in terms of the area of mapped inventory values (e.g., wildlife habitat, timber harvesting land base, mineral potential lands, scenic areas, etc.) within the various land use zone categories (i.e., new Protection Areas (PPAs), Special Management Zones, Option Zones, etc.)

5. In assessing the socio-economic impacts of the *Framework Agreement* related to the **timber sector** vs. the Base Case, the contractor shall utilize harvest flow projections provided by the Ministry of Forests (MoF). This timber supply analysis shall be provided for each of the TFLs and TSAs in the Plan Area, and in addition to a "Base Case" run, will test for exclusion of Timber Harvesting Land Base (THLB) in recommended "Protection," "Option," and "First Nations Lead" areas. Assumptions for constraints within the special management "visuals" zones will be provided by government for the contractor. Note that the risk of market boycotts of forest products, trade issues pertaining to softwood lumber, aboriginal land claims, and other events occurring in the absence of the LRMP are to be explicitly taken into account in the Base Case. Key indicators to be used in the timber sector analysis are:

- Amount of THLB and H/M/L "woodshed" cost harvest areas in the various zones; harvest flows by management unit; and jobs, incomes, and government revenues; &
- Qualitative assessment of the management direction in the *Framework Agreement*, including some discussion on the "ecosystem-based management" section, and the overall economic significance of the impacts to the timber industry.

6. In assessing the socio-economic impacts related to the **mining/energy sectors** vs. those of the Base Case, the implications of the *Framework Agreement* on investor confidence should be addressed, as well as probability/timing of any potential future developments. Key indicators to be used in the mining & energy (primarily hydro and geo-thermal) sector analysis are:
   - Amount of high potential lands, developed prospects, & tenures in the various zones; &
   - Qualitative assessment of the management direction in the *Framework Agreement* and overall economic significance of the impacts to these industries.

7. In assessing the socio-economic impacts related to the **tourism & recreation sector** vs. those of the Base Case, the contractor will pay closest attention to the "back-country/wilderness" portion of the sector due to its more direct linkage to crown land use planning; the implications of *Framework Agreement* on investor confidence should also be addressed. Key indicators to be used in this portion of the assessment are:
   - Amount of high visually sensitive lands, Undeveloped Watersheds, Recreation Opportunity Spectrum lands, tenures, and tourism facilities in the various zones; &
   - Qualitative assessment of the management direction in the *Framework Agreement* and overall economic/social significance of the impacts to the tourism/recreation sectors.

8. For any socio-economic impacts on the **aquaculture sector** vs. those of the Base Case, the quantitative indicators to be used are, subject to input from resource agency staff, existing aquaculture sites/tenures potentially affected, and jobs/incomes if appropriate. The management direction in the *Framework Agreement* must be taken in account explicitly.

9. Some assessment, although not necessarily quantitative, of the potential for and extent of **tenure compensation** (i.e., for resource tenures affected by recommended PPAs) and **mitigation** (i.e., any recommendations in the *Framework Agreement* that might lessen socio-economic impacts) should be undertaken. Such assessment will rely heavily on input from appropriate resource agency staff.

10. The contractor must also ensure that the **environmental impacts/risks** to key values are also assessed vs. those of the Base Case. The key indicators to be used (subject to provision by government agencies of the appropriate resource analysis) are:
    - Amount of the various biogeoclimatic sub-zone variants, eco-sections, black bear suitability, marbled murrelet suitability, deer suitability, mountain goat suitability, grizzly bear habitat effectiveness, and sensitive fisheries watersheds in the various zones; &
    - Qualitative assessment of the management direction in the *Framework Agreement*, including the recommendations pertaining to "ecosystem-based management," and the overall risks to various species vs. those of the Base Case.

-END-

APPENDIX D:
Illustrative Examples of Potential Economic Implications to the B.C. Coastal Forest Industry from International Environmental Campaigns

Without a final land use agreement for the Central Coast, it seems apparent that pulp sales to some European countries and sales of coastal lumber to the U.S. would be at risk due to potential economic boycotts related to concerns by environmentalists about the impacts of timber harvesting on B.C.'s coastal temperate rainforest. While these are the areas of immediate risk, it is also possible that other markets could also have been threatened by increasing international concern.

It is extremely difficult to evaluate what sales may have been lost and even more difficult to evaluate the risk of future losses. However, it is clear that some level of risk exists. Some ***illustrative examples*** can be used to demonstrate the potential impacts of allowing conflicts regarding coastal forestry issues to continue. Again, it must be emphasized that these examples are for illustrative purposes only.

Example #1: Illustrative Potential Loss of Pulp Sales to Europe[61]

It is assumed for illustrative purposes in the analysis *that 25% of coastal pulp sales to the three countries in the EU that appear to be most sensitive to this issue might be lost if conflict continued.* Note that the example does not account for the possibility that alternative markets might exist.

The assumptions, methodology, and conclusions are as follows:

- According to MoF data, out of 8,427,000 tonnes of provincial pulp mill capacity, 55% is in pulp mills located on the coast.
- BC STATS data indicate that average pulp exports to all countries for 1990-99 were about $3.2 billion annually; thus it is assumed that 55% or about $1.8 billion is from coastal pulp mills.
- According to the Council of Forest Industries (COFI) data, 1999 overall BC pulp employment is 6,000,[62] and according to the MoF, 68% of pulp/paper employment is on the coast; thus it is assumed that 68% or 4,086 pulp employees work in mills on the coast.
- BC STATS data indicate that the average dollar value of pulp exports (not including paper) to the European Union (EU) was $1.1 billion annually for 1990-2000. For the 3 countries assumed to be most sensitized to BC forest issues (i.e., the U.K., Netherlands, and German), the average for the same period is about $455 million annually.
- Based on 55% pulp capacity on the coast, it is assumed that 55% of the average value purchased by the 3 countries, or $250 million/yr., of BC's average pulp exports to the EU come from coastal mills.
- It is then assumed that these exports decline by 25% or $63 million/yr.

---

[61] Note that lumber sales from coastal BC to the European Union (EU) might also be threatened, but are ignored in this analysis because they are relatively small. Of about $15 billion in 1999 total BC forest product exports to all countries, about $1 billion is pulp exports to the EU and only about $300 million is exports of solid wood products to the EU, with most of the latter coming from the B.C. interior.

[62] The Ministry of Forests estimate is higher, but the COFI estimate is used for purposes of conservatism.

- With about $1.8 billion in estimated coastal pulp mill exports, and 10 coastal pulp mills of significant size, the average coastal pulp mill would have annual exports of $176 million. Thus, an illustrative 25% loss in sales to these countries would imply an annual loss in the order of one-third (i.e., $63/$176) of the annual export sales of one average coastal pulp operation.[63] Note this excludes impacts on paper production and on sawmills supplying chips and any logging impacts.

- Looking at the same potential impact another way, losing $63 million of the estimated total $1.8 billion in annual pulp exports from coastal mills works out to a 4% loss in exports and thus 4% of overall production. Since there are 10 coastal pulp mills (excluding a small 31,000 metric tonnes/yr. pulp mill using hardwood fibre) and a productive capacity of 4,584 metric tonnes/yr., a 4% loss implies a loss of 183,000 metric tonnes which is about 40% of the 458 metric tonne/yr. size of one average size coastal pulp mill, estimated to employ 4086/10 = 409 workers. (Note there are 3 pulp mills for which 183,000 metric tonnes/yr. is over or close to total capacity of any one of them, including Western's operations at Port Alice (173,000) and Woodfibre (259,000), and the Pacifica mill (219,000) in Port Alberni.)

- Using a less conservative assumption, if the estimated $583 million (55% x $1.1 billion) in coastal pulp exports to the entire EU declined by 25%, the loss would be 8% or $146 million of sales annually; this is also about 367,000 metric tonnes in annual output, an amount larger than the capacity of any of the three pulp mills noted above and equal to 80% of the capacity of one average size coastal pulp mill.

Example #2: Illustrative Potential Loss in Lumber Sales to the United States

There is also some evidence, including public statements by large lumber retailers in the U.S., that without a reduction in conflict, lumber purchases from the BC coast might be threatened.

The assumption is made that 25% of this market would be lost in the absence of a Central Coast agreement. It is assumed that the entire coastal market would be threatened due to the difficulties that would be encountered in targeting the products of specific companies. It should be noted again that this is illustrative since there is no way to accurately predict sales that might be lost with no land use agreement, and that there is no accounting for increases in alternative markets.

The assumptions, methodology, and conclusions are as follows:

- According to the Ministry of Forests, about 10% of lumber sales by volume to the US are from coastal British Columbia. This suggests that coastal lumber sales to the US are approximately 900 million board feet annually (10% of roughly 9 billion board feet).

- If it were assumed 25% of coast lumber exports to the US were lost as a result of conservation concerns (25% of 900 million), the impact would 225 million board feet of annual production.

- This would be approximately equivalent to the production of two coastal sawmills, or over 500 processing and harvesting jobs.

[63] It is understood that almost 100% of BC pulp sales consist of exports to other countries.

APPENDIX E: Forest and Mineral Sector Mitigation /Compensation Issues

Tenures

It is beyond the scope of this report to estimate potential compensation payments by government to tenure-holders as a result of PPAs and any other potential "takings." Any amounts are subject to quite complex calculations and negotiations between the parties.

There are only two recent forestry examples to cite for the Coast, neither of which should be construed as a precedent for any potential settlement for the Central Coast. One settlement was with Macmillan Bloedel (now Weyerhaueser) for parts of TFL #44 and various Timber Licenses that were precluded by new parks resulting from the Vancouver Island Land Use Plan (VILUP) and the Clayoquot decision. The second instance involved Interfor, for areas precluded by the VILUP and new protected areas in the lower mainland of B.C.

While quantitative estimates of any potential future settlements resulting from the *Framework Agreement* cannot be estimated here, it is worthwhile to summarize the key principles under which such compensation might occur, according to Section 60 of the Forest Act. Briefly, this section allows the Minister of Forests to delete up to five percent of a forest tenure (TSA forest license, TFL, Timber License or woodlot license) for non-timber production purposes such as parks, without compensation. Deletions above this five percent limit are compensable, and is based on the time period covered by the unexpired portion of the license.[64] In addition, compensation may be due for lost improvements, such as logging roads, that have been paid for by the licensee.

Compensation for mineral tenures alienated by new PAs may also be due. Compensation is negotiated based on the investment history and development prospects for each tenure or group of tenures. A fund was established by the Province in 1998 to compensate all mineral titles affected by previously created parks. To date, the average cost of settling, for 55 mineral titles, is about $8,800 per title.

Potential Impacts on Workers[65]

This assessment has concluded that after taking into account the significant under-harvest of the Plan Area AAC, the permanent, first decade permanent impacts on existing direct forest jobs from new PPAs and SMZs proposed in the *Framework Agreement*, are estimated at about 100 harvesting and processing workers. In addition, this assessment concluded that there could be up to about 300 temporary dislocations of Central Coast forest workers (some of which may have already occurred) due to a combination of poor markets and the *Agreement*, given the operational difficulties with identifying and moving to new economic harvesting areas due to the PPAs and deferrals for the Option and First Nations Lead areas. The *Framework Agreement* includes provisions for monetary compensation for displaced workers and communities of $35 to $55 million, consisting of a combination of funding from FRBC, industry, and possibly environmental organizations, if matching arrangements can be reached. It would appear that even if one chooses to accept larger permanent job impact estimates due to the *Agreement* than estimated in this assessment, the lower end of the compensation fund would be more than

[64] TFLs are typically issued for a 25 year term and forest licenses generally have a 15 year term.

[65] No compensation fund has been established for mining workers, but in any case, there are no existing mining operations in the Plan Area.

sufficient.[66] However, it is acknowledged that potential job loss, *due to the Framework Agreement alone*, is very difficult to distinguish from Base Case causal factors. Therefore, if the job impact estimates in this report are not accepted by the key parties, the organizations and/or individuals claiming compensation should possibly be required to demonstrate on a case by case basis how the loss of livelihood is attributable to the *Agreement*.

An alternative perspective is that given that the difficulties of determining the causes of impacts, it might be fairer and more expeditious for government and the parties to "negotiate" a mutually acceptable job impact estimate and compensation amount given the available funds. This approach is also in recognition of the fact that virtually all "Base Case" causal factors are outside of the control of workers (e.g., poor markets, FPC, stumpage rates, historical harvesting rates in excess of the sustainable level, potential environmental boycotts, etc.) and that there are broad social/environmental benefits of the *Agreement*, the FPC, etc. that B.C. society is receiving in part at the expense of some forest industry jobs – therefore to expect the broader public to compensate those impacted may therefore not be unreasonable. This approach would not only assist individual workers regardless of the source of the impact, but would also help the industry rationalize its operations to more pro-actively adjust to the various ongoing causal factors.

In addition to the above, government and the impacted parties at the same time could examine the most cost-effective means of mitigating impacts on workers, e.g., pension bridging plans[67] for older workers to "create space" in the workforce or accelerating administrative and environmental review processes in order to find alternative timber harvesting sites.

---

[66] For example, even if roughly 200 workers were judged to be permanently impacted as a result of the *Framework Agreement*, each of them could be paid some sort of compensation, severance, or pension bridging allowance of over $85,000 per year for two years with a cap of $35,000,000.

[67] Some actuarial and other analysis on the costs and benefits of pension-bridging for forest workers was done for FRBC in the late 1990s and the preliminary conclusion reached was that it tended to be a more cost-effective and sensible way of rationalizing the workforce than other mechanisms such as re-training and job creation with public funds.